EA/FONSI Log Number: 07-120

2008 CONDITIONAL ONE YEAR PRE-APPROVAL OF TRANSFERS AND EXCHANGES BETWEEN FRIANT AND CROSS VALLEY LONG-TERM CVP CONTRACTORS AND NCVP CONTRACTORS

South-Central California Area Office

Date: March 11, 2008

To:					
	Wildlife Biologist	SCC 424	SME	S McDonald	3/11/08
	Secretary	SCC 101		P Escobar	3/12/08
	Acting Chief, Resource Division	SCC 400		V Curley	3-12-08
	Deputy Area Manager	SCC 102		W Shipp	3/14/08
	Natural Resource Specialist	SCC 413		J Tapia	3/14/08

Cost Authority Number: A10-1785-8943-332-10-0-0

From: Judi Tapia

Subject: Review and signing of FONSI

Please review the attached FONSI/EA and route it according to the order on the list. When your review is finished, please date and initial this routing document, and sign on the first page of the FONSI if your name is listed. However, if you have comments or questions please contact the Environmental Team or the proponent of the action. When everyone has signed the FONSI, please return it to Judi Tapia.

Thank you.

Ready for Central Files 3/14/08

Copies to: MP-3730 (1 copy)
Project Proponent: Barbara Hidleburg (SCC- 415)
RMD Files
E-Copy (M. Yow)

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

MID-PACIFIC REGION

SOUTH-CENTRAL CALIFORNIA AREA OFFICE
FRESNO, CALIFORNIA

FINDING OF NO SIGNIFICANT IMPACT

2008 CONDITIONAL ONE YEAR PRE-APPROVAL OF TRANSFERS AND EXCHANGES BETWEEN FRIANT AND CROSS VALLEY LONG-TERM CVP CONTRACTORS AND NON-CVP CONTRACTORS

Central Valley Project
Sacramento, California

FONSI-07-120

Recommended by:

Judi Tapia
Natural Resource Specialist
South Central California Area Office

Date: 3/11/08

Concurred by:

Valerie Curley
Acting Resource Management Division Chief
South Central California Area Office

Date: 3-12-08

Approved by:

Will Shipp
Deputy Area Manager
South Central California Area Office

Date: 3/14/08

Draft FINDING OF NO SIGNIFICANT IMPACT
2008 CONDITIONAL ONE YEAR PRE-APPROVAL OF TRANSFERS AND EXCHANGES BETWEEN FRIANT AND CROSS VALLEY LONG-TERM CVP CONTRACTORS AND NON-CVP CONTRACTORS

In accordance with section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as amended, the South-Central California Area Office of the U.S. Bureau of Reclamation (Reclamation), has determined that the approval of the transfer and exchange project is not a major federal action that would significantly affect the quality of the human environment and an environmental impact statement is not required. This Finding of No Significant Impact is supported by Reclamation's Draft Environmental Assessment (EA) Number EA-07-120, 2008 Conditional One Year Pre-approval of Transfers and Exchanges between Friant and Cross Valley Long-Term CVP Contractors and Non-CVP Contractors, and is hereby incorporated by reference.

BACKGROUND

The Bureau of Reclamation (Reclamation) proposes to programmatically pre-approve transfers and exchanges of up to 70,000 AF of CVP water from Millerton Reservoir between Friant and Cross Valley Long-Term CVP Contractors and Non-CVP Contractors in the 2008 contract year. The water will be delivered to non-long term CVP Contractors (NCVPC) via the Friant-Kern Canal and conveyance facilities emanating from it.

Friant Division and Cross Valley Contractors have requested that a streamlined conditional pre-approval process be developed to encourage efficient water management and allow maximum water management flexibility between themselves and a group of 17 NCVPC through transfer and exchanges.

The NCVPC who are potential recipients of transfer or exchanges are:

- Buena Vista Water Storage District
- Cawelo Water District
- Consolidated Irrigation District
- Corcoran Irrigation District
- Deer Creek & Tule River Authority
- Rosedale-Rio Bravo Water Storage District
- Semitropic Water Storage District
- Tulare Lake Basin Water Storage District
- North Kern Water Storage District
- Kings County Water District
- Kings River Conservation District
- Lakeside Irrigation District
- Liberty Water District
- Kaweah Delta Water Conservation District
- Kern County Water Agency
- Kern Delta Water District
- Kern Water Bank Authority

As the referenced EA looks at the conveyance and delivery of CVP water supplies from a programmatic viewpoint but does not evaluate the freeing up of the water supplies from Friant and Cross Valley Contractor's districts, additional individual proposal specific environmental analysis must be completed for each transfer or exchange requested.

As a condition of the proposed transfers and exchanges, the NCVPC water application or conveyance will not affect the presence of threatened or endangered species. Grasslands and shrub land that have never been tilled or irrigated will not be tilled and put into production using this water acquired via transfer or exchange. Land that has been fallowed, idled, or not cultivated on a temporary basis (less than three consecutive years) and rotated back into production is not considered conversion of a native habitat. Participating NCVPC will commit to compliance with the terms and conditions of the Friant Long Term Contract Renewal Biological Opinion.

The alternatives also require that the following conditions be met:

- CVP water may be applied only to lands located within the applicable Friant POU boundaries inside of NCVPC's established service area boundaries,
- CVP water may be used for either Agricultural or M&I purposes,
- No native or untilled land (fallow for 3 years or more) may be cultivated with CVP water involved in these actions,
- No new construction or modification of existing facilities is to occur in order to complete the proposed actions,
- No new water supplies are to be created by the delivery of the CVP water to the NCVPC for movement outside of the NCVPC's service area boundaries,
- There can be no impacts to third parties,
- Transfers and exchanges involving CVP water cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams or creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats,
- All transfers and exchanges involving CVP water must comply with all applicable federal, state and local laws, regulations, permits, guidelines and policies
- Reclamation will review each transfer or exchange proposal for compliance with the above conditions prior to approval and execution of the action.

FINDINGS

Surface Water Resources: The Proposed Action improves the NCVPC's short term water supply and operational efficiency at times when the CVP Contractors have demonstrated that they have freed up their water supplies for transfer in compliance with CVPIA. CVPIA requires that the Contractor's show a reduction in consumptive use or that the water would have been irretrievably lost in order for the water to be transferable. The amount of water to be transferred is small when considering overall water supplies. No new facilities would be needed as a result of the Proposed Action. The Proposed Action would not interfere with the normal operations of any CVP facilities, nor would it impede any CVP obligations to deliver water to other contractors or to local fish and wildlife habitat. Friant and Cross Valley Contractors would not be changing in-district historic long term land and water management practices as a result of the Proposed Action. The amount of water

diverted from reservoirs or waterways would not change although the timing may differ. Project operations and facility use would not vary significantly.

The Proposed Action involves existing water supplies and does not result in additional diversions of water. No SWP water or facilities are involved in the Proposed Action. Overall water supplies would not increase or decrease. Water quality and quantities would not change. Therefore, the Proposed Action would cause no significant impacts to surface water resources.

Groundwater Resources: Both the CVP and NCVPC Contractors share the same aquifer. The transfer of water to areas with insufficient surface water supplies would result in less pumping of groundwater in those areas. As groundwater overdraft is considered a threat to the water quality and quantity in the San Joaquin Valley, this would constitute a beneficial effect. Groundwater use would likely increase in dry years as in the past. To the extent that up to 70,000 af of water is available and transferred to areas with overdraft conditions, groundwater recharge opportunities could improve and/or groundwater pumping would be reduced. This benefit would be small and would not lead to significant changes in groundwater quality and quantity.

Land Use: The Proposed Action would not change land use conditions from existing conditions. All water would move through existing facilities and be placed on established agricultural lands. None of the project CVP water would be used to place any untilled or new lands into production, or to convert undeveloped land to other uses. NCVPC would not convert additional land to farming based on these temporary transfer and exchanges. Any water that is delivered to lands within NCVPC as a result of this project would be to help offset temporary water supply shortages. The Proposed Action involves temporary transfers and exchanges and would not provide incentive for long-term land use changes. Therefore, the Proposed Action is not expected to cause significant environmental impacts on land use.

Biological Resources: The short duration of the water availability, the requirement that no native lands be converted without consultation with Fish and Wildlife Service, and the requirements for transfers under applicable laws would preclude any impacts to wildlife. Water moved under the Proposed Action would be conveyed in existing facilities and no new construction or land disturbing activities would occur. Farming practices would not change including fallowing lands. Decisions to fallow lands are based on fluctuating agricultural economical and hydrological conditions. The decision to fallow lands could free up water to be redistributed within the water district or transferred. Reclamation determines annual allocations to CVP contractors based on hydrological conditions and after meeting water quality, fish and wildlife requirements. Habitat types would not change from past conditions. Lands that have been fallowed for three consecutive years would require biological surveys prior to disking. Approval of the transfers of water would not interfere with the requirements or ability of Reclamation to make water available for fish and wildlife uses mandated by CVPIA or the various Biological Opinions relating to the action area. There would be no effects to biological resources.

Cultural Resources: The conveyance of Friant CVP and exchanged water would not harm any cultural resources. Water supplies would be transferred, exchanged and conveyed in existing facilities and canals to established agricultural land. No excavation or construction is required to convey the water and no untilled land will be cultivated with this water. Consequently, the undertaking is not a type of activity with the potential to affect cultural resources eligible to the National Register of Historic Places.

Indian Trust Assets: The same amount of water would be diverted and used within the same geographical area. There are no tribes possessing legal property interests held in trust by the United States associated with this water. Annual allocations of CVP water are made after factoring in American Indian fishing rights and do not interfere with deliveries to Indian Reservations.

Socioeconomic Resources: The delivery of the Friant or Cross Valley CVP water to NCVPC will provide water to water short areas and would help sustain NCVPC's existing croplands. Businesses rely on these crops to maintain jobs. The Proposed Action would not induce population growth within NCVPC's districts, nor would seasonal labor requirements change. Agriculturally dependent businesses would not be affected by the Proposed Action. No adverse effects on public health and safety would occur. The Proposed Action would not have highly controversial or uncertain environmental effects or involve unique or unknown environmental risks. The Proposed Action would continue to support the economic vitality in the region. Friant, Cross Valley and NCVPCs are responsible for managing water for the benefit of the landowners or constituents within their service areas for agricultural or M&I uses, since they exist to support growers or the general public within their respective districts. Maximizing the use of water service actions is beneficial to local economic conditions and agricultural employment. The Proposed Action would, therefore, have slight benefits to agricultural operators, and no impacts to agriculture supported businesses or employees.

Environmental Justice: The Proposed Action does not result in increases or decreases of overall water supplies nor changes from past conditions. Hydrological conditions could result in less water available to irrigate farms and support M&I uses. Under dry conditions, fewer acres of lands may be irrigated and job opportunities for low income farm workers could be reduced. The transfers and exchanges allow available water supplies to be redistributed within the same geographical area. Transfers and exchanges will allow deliveries of water to existing permanent and annual crops and existing M&I purposes. Current crop production supports existing food processing plants and their associated jobs. The Proposed Action is a water management tools that could maintain some crops and jobs for farm laborers. The Proposed Action will not change overall water supplies. The Proposed Action may result in small positive impacts on the continuation of job opportunities for low income wage earners.

Cumulative Impacts: The Proposed Action will allow NCVPCs to utilize the delivered Friant or Cross Valley CVP water for meeting crop demands within their districts during the 2008 contract year. There are no cumulative impacts to canals, facilities, or operations for delivering surface water supplies, since the Proposed Action would utilize existing facilities as designed. The Proposed Action, when added to other past, present, and future actions does not result in additional diversions of water. Water quality would not be degraded as a result of water service actions. Water service actions are typically requested to manage and move available water supplies through existing facilities to meet existing demands within fluctuating hydrological conditions. Valley wide water supply quantities would not change. To the extent that the CVP has delivered surface water supplies into NCVPC districts with this project and through past transfers and exchanges, groundwater management has improved and may continue to improve the water table levels in the aquifers in the region. The Proposed Action, in conjunction with past, present and reasonably forseen actions would not result in any significant impacts to the environment.

RECLAMATION

Managing Water in the West

Final Environmental Assessment

2008 Conditional One Year Pre-approval of Transfers and Exchanges between Friant and Cross Valley Long-Term CVP Contractors and NCVP Contractors

EA-07-120

U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South Central California Area Office
Fresno, California

March 2008

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Contents

List of Acronyms, Abbreviations, and Definition of Terms

AID	Alta Irrigation District
af	acre-feet; One acre-foot equals 325,851 gallons (the volume of water one foot deep and an acre in area)
af/y	Acre-feet per year
Ag	Agricultural typically referring to the purpose of use of water
Aqueduct	California Aqueduct
BA	Biological Assessment
Banking	Banking is percolating surface water into the ground for later extraction and use outside of the groundwater banking boundary
BO	Biological Opinion
BVWSD	Buena Vista Water Storage District
CDFG	California Department of Fish and Game
CNDDB	California Natural Diversity Database
CNLM	Center for Natural Land Management
CO	Contracting Officer
CoID	Consolidated Irrigation District
Conjunctive Use	Conjunctive use is percolating surface water into the ground for later extraction and use within the district or groundwater banking boundary
Contractor	City, county, water or irrigation district contracted with Federal or State Agencies to obtain water.
Contract Year	A contract year typically begins on March 1st and ends February 28th of the following year however it is the period of time specified in the Contract.
Corps	US Army Corps of Engineers
CVC	Cross Valley Canal
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVP Contractor	Friant Division or Cross Valley Division Long-Term Contractor
CWD	Cawelo Water District
DCTRA	Deer Creek and Tule River Authority
DWR	Department of Water Resources
EA	Environmental Assessment
ENCSD	East Niles Community Services District
ESA	Endangered Species Act
Exchange	Exchange of water between contractors
FID	Fresno Irrigation District
FKC	Friant-Kern Canal
Friant	Friant Division
HCP	Habitat Conservation Plan
ID	Irrigation District

In-Lieu Groundwater Banking	In-lieu groundwater banking is the immediate use of surface water instead of percolating it into the ground resulting in the development of a groundwater account the provider of the surface water can obtain at a later date.
JID	James Irrigation District
KCWA	Kern County Water Agency
KCWD	Kings County Water District
KDWD	Kern Delta Water District
KDWCD	Kaweah Delta Water Conservation District
KNWR	Kern National Wildlife Refuge
KRCD	Kings River Conservation District
KWB	Kern Water Bank
LID	Laguna Irrigation District
LIWD	Lakeside Irrigation Water District
LWD	Liberty Water District
mg/L	milligram per liter
M&I	Municipal and Industrial, typically referring to the purpose of use of water
MUD	Municipal Utility District
NEPA	National Environmental Policy Act
NKWSD	North Kern Water Storage District
NCVP	Non-Central Valley Project
NCVPC	Non-CVP Contractor
POU	Place of Use defined within Reclamation's water rights permits
Reclamation	U.S. Bureau of Reclamation
RRBWSD	Rosedale-Rio Bravo Water Storage District
RRA	Reclamation Reform Act of 1982
St JWD	Saint John Water District
SWID	Shafter Wasco Irrigation District
SWSD	Semitropic Water Storage District
Service	U.S. Fish & Wildlife Service
SWP	State Water Project
TID	Tranquility Irrigation District
TLBWSD	Tulare Lake Basin Water Storage District
T&E or T & E Species	Threatened and Endangered species, as defined by the Federal Endangered Species Act
WD	Water District
WR-MWSD	Wheeler Ridge – Maricopa Water Storage District
WSD	Water Storage District

Section 1 Purpose and Need for Action

1.1 Background

Friant Division (Friant) and Cross Valley Central Valley Project (CVP) contractors have requested a streamlined process to allow transfers and exchanges of water with entities that do not have long term water service contracts with Reclamation. The identified group of 17 non-CVP contractors (NCVPC) (See Section 2.1 for listing) has historically received CVP water deliveries via the Friant-Kern Canal (FKC) either from the delivery of unstorable flood flows via temporary water service contracts (executed pursuant to section 215 of the Reclamation Reform Act of 1982, as amended) or from transfers from CVP contractors.

Depending on the availability of surface water to these non-CVP entities they pump groundwater to a greater or lesser extent. Since these non-CVP contractors overlie the same groundwater aquifer as the Friant and Cross Valley contractors and the CVP contractors utilize conjunctive use, the use of groundwater by NCVPC impacts CVP contractors' overall water supplies.

Friant and Cross Valley contractors are interested in having an expedited approval process to deliver CVP water to these neighboring water supply entities when they have water supplies surplus to their in-district needs. Limiting or delaying CVP surface water deliveries to neighboring non-CVP contractors leads to the exacerbation of localized cones of depression in the non-CVP districts' water tables. In turn, this affects the groundwater level and supply beneath the CVP contractor service areas. Changing flow gradients in the aquifer away from CVP contractors' service areas as water flows to lower levels in the nearby areas is detrimental to the CVP contractors' water supply balance. Since CVP supplies are recharged into the groundwater table in years of abundance and relied upon in dry years (conjunctive use), any dynamics that increase the flow of groundwater from beneath a CVP contractor is detrimental to CVP contractors. Impacts can be both from financial and water supply standpoints as purchased and percolated CVP water flows beyond the CVP water contractors' service area decreasing their groundwater supply and increasing pumping lifts. Friant Division contractors seek to have a streamlined process to move water supplies to neighboring contractors to decrease groundwater pumping and minimize overdraft in their vicinities.

1.2 Purpose and Need

It is difficult to anticipate months in advance the water actions that would optimize water management for CVP and non-CVP contractors due to the dynamic and unpredictable hydrology and weather conditions of the region. The federal environmental compliance process typically takes many months to complete. The purpose of the project is to provide Friant Division and

Cross Valley contractors a streamlined process for obtaining Reclamation's approval for transfers and exchanges to NCVPC.

The request for a streamlined process is driven by the changing dynamics of water supply and weather that influence the contractor's availability and need for water supplies. Reclamation's water supply allocations vary over the contract year as the hydrologic conditions change and are reflected in revisions of the contractual water supply allocation declaration. Additionally, as unpredictable weather conditions change from dry to wet to freezing to hot and the timing of these weather conditions vary, the water contractor's demand for water fluctuates.

The purpose of the Proposed Action is to facilitate efficient water management by allowing Reclamation to respond more rapidly to proposals from Friant Division and Cross Valley CVP contractors for Friant Division CVP water to be delivered to NCVPCs. It is expected that a streamlined approval process would provide greater flexibility in matching available supplies to water deficient areas helping to balance existing water supplies in the lower San Joaquin Valley more effectively meeting the contractor's water management objectives. These water district objectives for efficient water management typically include the following:

- Avoid long-term overdraft by achieving a balanced groundwater budget
- Integrate groundwater management with use of CVP and other surface water supplies as available
- Maintain, enhance and maximize groundwater recharge as geologic conditions allow
- Avoid or correct groundwater levels that are too low to support existing wells or too high to protect the root zone or prevent groundwater recharge
- Provide water supplies that meet drinking water quality standards to municipalities (as applicable)
- Minimize long-term dissolved solids concentrations in groundwater
- Maximize cropland preservation

The action is needed to ensure that water supplies are used at maximum efficiency taking into consideration timing, availability and variability of CVP and non-CVP water supplies. Additionally, the action is needed to preserve groundwater levels within the CVP contractors' service areas. Quite often, non-CVP contractors have less water supply options and more quickly turn to pumping groundwater. In order to preserve their own groundwater levels, CVP contractors need the ability to transfer or exchange water supplies to reduce the need of non-CVP contractors pumping groundwater.

1.3 Scope

Since the movement of CVP water out of the Friant Division contractors' service areas has been analyzed in other documents and the site specific impacts of water leaving an individual district will need to be evaluated when a specific request is received by Reclamation, the focus of this document is to evaluate the environmental impacts of the conveyance and delivery of Friant CVP water into each of the NCVPC's service areas within Reclamation's permitted Place of Use (POU) for delivery of water from the San Joaquin River.

This action also includes transfers from Cross Valley contractors of Friant CVP water supplies.

The scope of this EA includes analysis of the delivery of Friant CVP water (CVP supplies originating from behind Friant Dam) within the NCVPC's service areas either via transfer or exchange. The source of water to effectuate the exchanges could be NCVPC's State Water Project (SWP) water conveyed from the Delta or other surface water supplies diverted based on the NCVPC's water rights including rivers, creeks and streams. The analysis of exchanges of water between the contactors identified above is defined as "bucket-for-bucket" or exchanges of equivalent amounts of water.

The NCVPC's participating in this Proposed Action involving CVP water service actions are located in Fresno, Kings, Tulare, and Kern Counties in the southern San Joaquin Valley.

Excluded from this EA are:

- Any transfers or exchanges that require the movement of water through facilities or structures that have not yet been built as of January 2008
- CVP contractors south of the delta in the West San Joaquin Division and the Delta Division or transfers and exchanges of water originating in the delta
- Banking of CVP water in groundwater banks or transfer or exchange of previously banked water
- Cross Valley interim water service contracts Article 5 exchanges
- Unbalanced exchanges

Separate environmental documentation would be required for such excluded actions.

1.4 Potential Issues

- Water Resources
    - Surface Water
    - Water Conveyance
    - Groundwater
- Land Use
- Biological Resources
- Socioeconomic Resources
- Cultural Resources
- Indian Trust Assets
- Environmental Justice

1.5 Authorities for the Proposed Action

Water transfers between Friant Division or Cross-Valley CVP contractors and the NCVPC are authorized pursuant to §3405 of the Central Valley Project Improvement Act (CVPIA). These transfers are subject to Reclamation's administrative review and approval processes based on policy and law. Each transfer proposed under this project is subject to separate review and environmental analysis before approval. Exchanges of water supplies between Friant Division, Cross Valley CVP contractors and the NCVPC are authorized pursuant to the Reclamation Project Act of 1939, Section 14.

All water transfers analyzed in this EA are subject to the following contracting authorities and guidelines as applicable and as amended and updated and/or superseded:

- Title XXXIV CVPIA October 30, 1992, Section 3405 (a)
- Reclamation Reform Act (RRA), October 12, 1982
- Long-term Water Service Contracts for Friant Division
- Interim Water Service Contracts for Cross Valley contractors
- Reclamation's Interim Guidelines for Implementation of Water Transfers Under Title XXXIV of Public Law 102-575 (Water Transfer) February 25, 1993
- Reclamation and United States Fish and Wildlife Service (Service) Region 1, Final Administrative Proposal on Water Transfers April 16, 1998
- Reclamation's Regional Director's Letter Delegation of Regional Functional Responsibilities to the Area Offices – Water Transfers, Number 93-20 December 14, 1993

Section 2 Alternatives Including Proposed Action

2.1 No Action Alternative

Alternative 1

Reclamation would not develop a one year conditional pre-approval process for water transfers and exchanges between Friant and Cross Valley CVP contractors and the NCVPCs. Reclamation would not develop a streamlined process for expedited internal review of water transfers and exchanges for the NCVPC's in the 2008 contract year. The Friant Division or Cross Valley contractors could still request water service actions on an individual basis and separate environmental documents could be generated.

2.2 Proposed Action

Friant Division and Cross Valley contractors have requested that a streamlined conditional pre-approval process be developed to encourage efficient water management and allow maximum water management flexibility between themselves and a group of 17 NCVPC through transfers and exchanges.

The NCVPC who are potential recipients of transfers or exchanges are:

- Buena Vista Water Storage District
- Cawelo Water District ***
- Consolidated Irrigation District
- Corcoran Irrigation District
- Deer Creek & Tule River Authority
- Rosedale-Rio Bravo Water Storage District
- Semitropic Water Storage District
- Tulare Lake Basin Water Storage District
- North Kern Water Storage District
- Kings County Water District
- Kings River Conservation District
- Lakeside Irrigation District
- Liberty Water District
- Kaweah Delta Water Conservation District
- Kern County Water Agency
- Kern Delta Water District
- Kern Water Bank Authority

*** Part of the District is outside of the Friant Division POU and CVP water can only be delivered inside the POU boundaries.

Twelve of the above NCVPC's are individual entities and five are umbrella agencies which are comprised of numerous contractors. Deer Creek & Tule River Authority (DCTRA), Kaweah Delta Water Conservation District (KDWCD), Kern County Water Agency (KCWA), Kern Water Bank Authority (KWB) and Kings River Conservation District (KRCD) all serve as umbrella agencies with multiple sub-entities. Each of the twelve contractors that are individual

entities may also be included in one of the five umbrella agencies (see Figure 1). (Please see Appendix A for a detailed description of each NCVPC.) Listed below are the water service contractors for each of these five umbrella agencies.

Deer Creek & Tule River Authority Member Districts:

Lower Tule River Irrigation District
Porterville Irrigation District
Stone Corral Irrigation District
Pixley Irrigation District
Saucelito Irrigation District
Terra Bella Irrigation District

Kaweah Delta Water Conservation District:

Lakeside Irrigation District
Kings County Water District
Corcoran Irrigation District
Tulare Irrigation District

Kern County Water Agency:

Belridge Water Storage District**
Berrenda Mesa Water District**
Buena Vista Water Storage District
Cawelo Water District
Henry Miller Water District**
Kern County Water Agency Improvement District No. 4**
Kern Delta Water District
Lost Hills Water District**
Rosedale-Rio Bravo Water Storage District
Semitropic Water Storage District
Tehachapi-Cummings CWD**
Tejon-Castaic Water District**
West Kern Water District
Wheeler Ridge-Maricopa Water Storage District**

Kern Water Bank Authority Member Units:

Dudley Ridge Water District**
Kern County Water Agency
Semitropic Water Storage District
Tejon-Castaic Water District**
Westside Mutual Water Company***
Wheeler Ridge-Maricopa Water Storage District**

Kings River Conservation District:

Alta Irrigation District
Clark's Fork Reclamation District No. 2069
Consolidated Irrigation District
Corcoran Irrigation District
Empire West Side Irrigation District
Fresno Irrigation District
James Irrigation District
Kings County Water District
Kings River Water District
Laguna Irrigation District
Lakeside Irrigation Water District
Liberty Water District
Mid-Valley Water District
Raisin City Water District
Riverdale Irrigation District
Salyer Water District
Stratford Irrigation District
Tranquility Irrigation District
Tulare Lake Basin Water Storage District
Tulare Lake Reclamation District No. 761

Burrell Ditch Company
Corcoran Irrigation Company
Crescent Canal Company
John Heinlen Mutual Water Company
Last Chance Water Ditch Company
Lemoore Canal and Irrigation Company
Liberty Canal Company
Liberty Mill Race Company
Lovelace Water Corporation
Peoples Ditch Company
Reed Ditch Company
Southeast Lake Water Company
Stinson Canal and Irrigation Company
Tulare Lake Canal Company
Upper San Jose Water Company

** District is outside of the Friant Division POU and is excluded from participation in the Proposed Action

*** District is partially outside of the Friant Division POU and CVP water can only be delivered inside POU boundaries

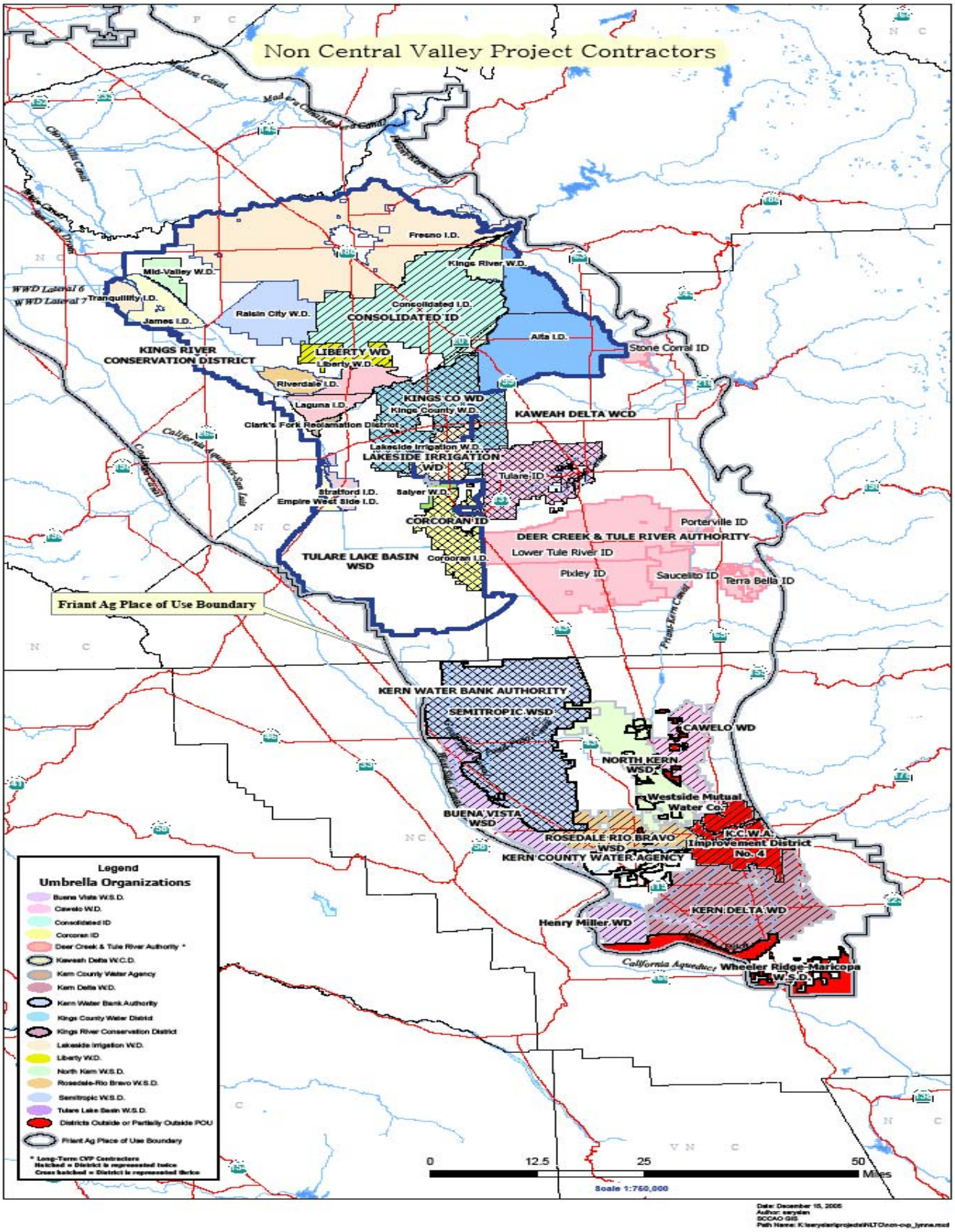

Figure 1 Non-CVP Contractors

This EA analyzes the conveyance and delivery of CVP water supplies from a programmatic viewpoint but does not evaluate the freeing up of the water supplies by the Friant and Cross Valley contractors. Additional individual proposal-specific environmental analysis must be completed for each transfer or exchange requested.

All supplies to be transferred and exchanged would be supplies from Millerton Reservoir as part of the transferor's CVP contract supply.

The alternatives also require that the following conditions be met:

- CVP water may be applied only to lands located within the applicable Friant POU boundaries inside of NCVPC's established service area boundaries
- CVP water may be used for either irrigation or municipal and industrial (M&I) purposes
- No native or untilled land (fallow for three years or more) may be cultivated with CVP water involved in these actions
- No new construction or modification of existing facilities is to occur in order to complete the Proposed Action. (The recently constructed FKC/CVC intertie is considered to be an existing facility.)
- No new water supplies are to be created by the delivery of the CVP water to the NCVPC for movement outside of the NCVPC's service area boundaries
- There can be no impacts to third parties
- Transfers and exchanges involving CVP water cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams or creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats
- Transfers and exchanges involving CVP water must comply with applicable federal, state and local laws, regulations, permits, guidelines and policies
- Reclamation would review each transfer or exchange proposal for compliance with the above conditions prior to approval and execution of the action
- Participating NCVPC would commit to compliance with the terms and conditions of the *Opinion (l-1-01-F-0027) on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contracts, January 19, 2001*.

The contractors in this Proposed Action would sign letters agreeing to the requirements described above to in order to avoid environmental impacts.

Action Alternatives

Reclamation, after internal scoping meetings and discussion with the CVP and NCVP contractors, has identified three alternatives that would meet the purpose and need identified, as listed below. Each of the action alternatives includes the general aspects of the Proposed Action described above.

Transfer Only Alternative - Alternative 2

Conditional pre-approval of up to 70,000 acre-feet per year (afy) of CVP water supplies transferred from Friant and Cross Valley CVP contractors to the NCVPCs delivered within the 2008 Contract Year and incorporating the general conditions described above.

Exchange Only Alternative - Alternative 3

Conditional pre-approval of up to 70,000 afy of CVP water supplies exchanged equivalently between Friant/Cross Valley CVP contractors and the NCVPCs. Each exchange must be initiated within the 2008 Contract Year with the equivalent amount of water being returned within 365 days of the initiation of CVP water movement. This alternative also incorporates the general conditions described above.

Preferred Alternative - Alternative 4

Approval of a combination of Alternatives 2 and 3 for a cumulative total of 70,000 afy (Preferred Alternative.) Alternative 4 has been identified as the Preferred Alternative because it would allow the greatest flexibility in meeting the agency goals and mission.

Section 3 Affected Environment and Environmental Consequences

3.1 Surface Water Resources

3.1.1 Affected Environment

There are 28 long-term CVP contractors in the Friant Division and eight Cross Valley contractors. The contractors' service areas are located on the eastern side of the San Joaquin Valley (see Figure 2). Water for the Friant Division comes from the San Joaquin River at Millerton Lake. From Millerton Lake, water is released into the 152-mile long FKC flowing south and the 36-mile long Madera Canal flowing north.

Cross Valley contractors obtain supplies from Millerton Reservoir either 1) via delivery directly from the reservoir under special conditions as specified within their contract provisions or 2) from a Friant contractor via exchange for their delta supplies as the method of taking delivery of their contract supplies.

The volume of Friant CVP water delivered to CVP contractors under existing water service contracts and deemed available for transfer or exchange varies from year to year and is dependent upon hydrological conditions. Water conveyed to these contractors is categorized as either "Class 1" or "Class 2" water. "Class 1" water is typically available on an annual basis while "Class 2" water is available during wet hydrologic conditions. The total "Class 1" water under contract is about 800,000 acre-feet (af). Class 2 water totals about 1,401,475 af. (More information about Friant contractors can be found in Appendix B.)

This section describes the water resources in the geographic area of the southern portion of the San Joaquin Valley as this is the locality of the Friant, Cross Valley and NCVPC. Water for the Friant Division comes from the San Joaquin River at Millerton Lake with a storage capacity of 520,000 af. From there, water is released from the reservoir to the south via the 152-mile-long FKC. Water released into the Madera Canal is outside the scope of this EA. Water for the Cross Valley contractors typically comes from northern California through the Delta Mendota Canal, California Aqueduct (Aqueduct) and the Cross Valley Canal. However, under special circumstances, Cross Valley contractors obtain water from Millerton Reservoir either by direct delivery in wet years after the needs of the Friant Division contractors have been met or by exchange arrangements with Friant Division contractors

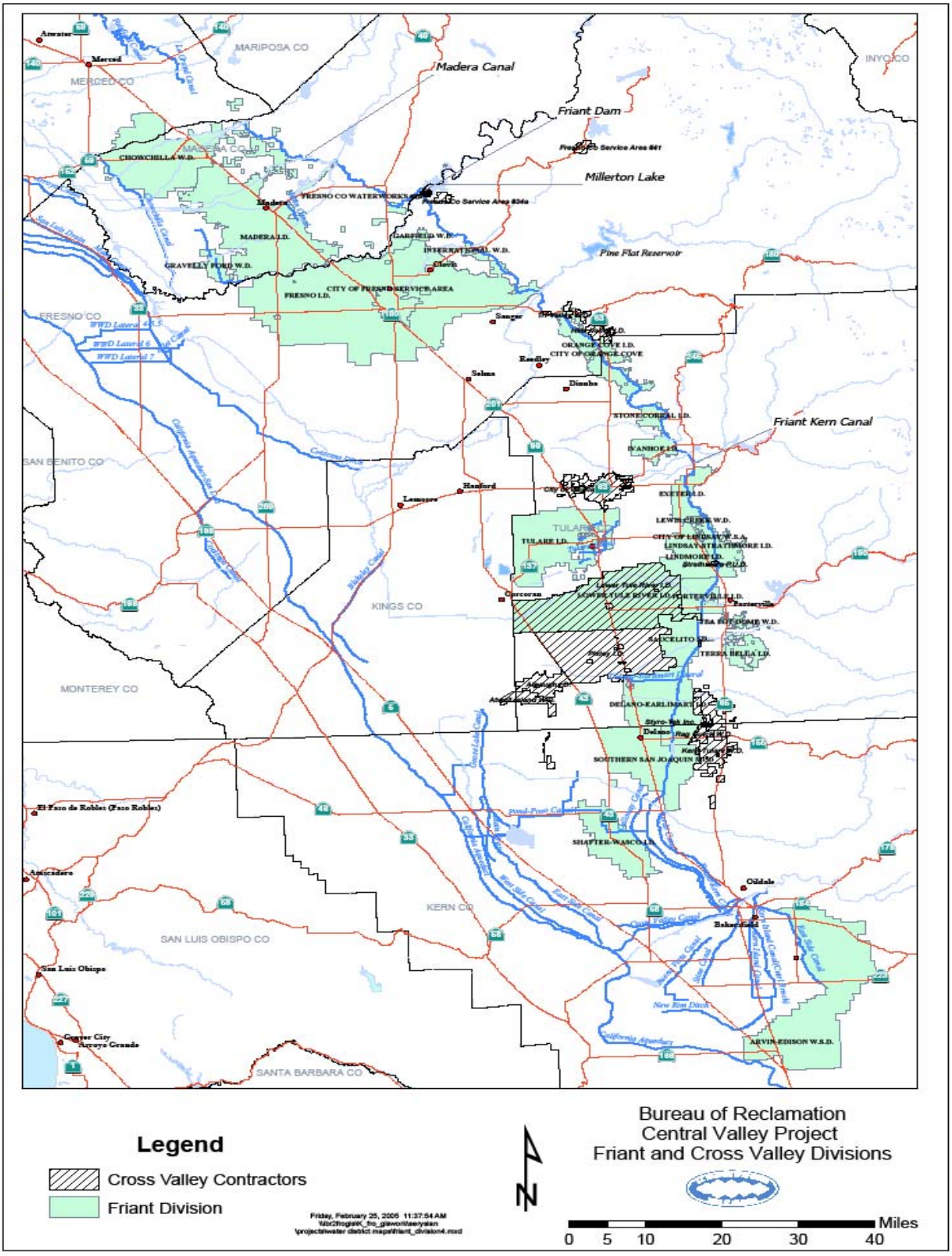

Figure 2 Friant Division and Cross Valley Contractors

The amount of water surplus to a CVP contractor's coincident irrigation or M&I demand each year is unpredictable and varies depending upon storm events. Contracts executed with NCVPC for Section 215 surplus water supplies are dependent upon water becoming available as defined in Section 215 of the RRA. Additionally, the NCVPC have a lower priority to take delivery of these unstorable flood flows. The NCVPC are offered 215 water only after the needs of the Friant and Cross Valley contractors have been met.

Table 1 reflects the primary surface water supplies for each NCVPC. These surface water supplies are potential supplies for exchanges.

Table 1

Surface Water Supply

Non-Long-Term CVP Contractors	Surface Water Supply	Uses
Buena Vista Water Storage District	SWP and Kern River	Ag
Cawelo Water District	SWP, Poso Creek, and Kern River	Ag
Consolidated Irrigation District	Kings River	Ag and M&I
Corcoran Irrigation District	Kings River	Ag
Deer Creek & Tule River Authority	CVP via the FKC and Tule River	Ag
Kaweah Delta Water Conservation District	SWP, Kaweah and St John's River, Cottonwood Creek, Lewis Creek, Yokohl Creek, Kings or Tule River	Ag
Kern County Water Agency	SWP; Kern River; Poso Creek; Caliente Creek; Kaweah, Tule, St Johns and Kings Rivers	Ag -except KCWA ID#4
Kern Delta Water District	SWP and Kern River	Ag
Kern Water Bank	SWP and Kern River	Ag and M&I
Kings County Water District	Kings and Kaweah Rivers	Ag
Kings River Conservation District	Kings River; Mill Creek; Sand Creek; Wahtoke Creek; Kaweah, St Johns, Tule River; and SWP	Ag
Lakeside Irrigation Water District	Kaweah and Kings Rivers	Ag
Liberty Water District	Kings River	Ag
North Kern Water Storage District	Kern River	Ag
Rosedale-Rio Bravo Water Storage District	SWP and Kern River	Ag
Semitropic Water Storage District	SWP and Poso Creek	Ag
Tulare Lake Basin WSD	SWP and Kings, Tule, Kaweah Rivers	Ag

Water Conveyance Facilities

The FKC is a prominent feature in the southern San Joaquin Valley and provides for the transport of water through the southeastern portion of the San Joaquin Valley for delivery to CVP Contractors. The FKC extends 152 miles south from Friant Dam in Fresno County to the

Kern River in Kern County four miles west of Bakersfield. The FKC exports water to areas in the Tulare Lake Hydrologic Basin.

The privately owned and operated Cross Valley Canal (CVC) begins at the Aqueduct near Taft and conveys water across the valley to the FKC near Bakersfield and beyond. The CVC is constructed so as to allow water to flow in either direction, conveying water to the east or to the west. The source of CVC water is from the Delta via SWP or CVP facilities.

The State of California constructed the Aqueduct as part of the SWP. Water from the Aqueduct flows out of the Delta near the City of Tracy to San Bernardino and Riverside and into Lake Perris reservoir.

Water contractors in the San Joaquin Valley have constructed extensive water conveyance systems to provide water throughout their districts. Water is distributed through an intricate network of canals and aqueducts to provide water where needed.

3.1.2 Environmental Consequences

No Action Alternative – Alternative 1

Under the No Action Alternative, water actions could not be approved within the timeframe needed to meet the need. Water supplies would not change and water use in NCVPCs associated with the ability to exchange and/or transfer water would be lost.

Transfer Only Alternative - Alternative 2

Under Alternative 2, the transfer of CVP water to an NCVPC would be subject to multiple laws and policies, including the transfer provisions of Section 3405 of the CVPIA. The amount of water being considered for transfer (up to 70,000 af) is approximately 3 percent of the total amount of Class 1 and Class 2 water generally available, and is just over 2 percent of the 3 million af of water that the NCVPC's have access to. Under this alternative, each proposed transfer would be required to comport with the transfer provisions of the CVPIA, and would fall under the analysis contained in the CVPIA Programmatic Environmental Impact Statement, which recognized that transfers are a necessary part of the operations of the CVP system. No changes would occur to overall water supplies. The amount of water to be transferred is small when considering overall water supplies. Water transfers are less likely to occur in wet years when most demands have been met. In dry years, overall water supplies would be smaller and the full 70,000 af would not likely be available to transfer. Water would be conveyed in existing facilities. No impacts would therefore occur due to the Proposed Action.

Exchange Only Alternative - Alternative 3

Under Alternative 3, the exchange of water on a "bucket for bucket" basis would not increase or decrease the water supply for either CVP contractors or NCVPCs, and would likely be

undertaken as a means to save on costs, such as those incurred when pumping water through the CVC. No impacts to water supply would occur under this alternative.

Preferred Alternative - Alternative 4

Under Alternative 4, Reclamation would approve throughout the water year some combination of the two alternatives above, as specific circumstances and requests warrant. Any effects to surface water would be a combination of the transfers and exchanges alternatives; as none of the two alternatives have impacts, there would be no impact as a result of this alternative.

Cumulative Impacts

The transfers and exchanges described in Alternatives 2, 3 and 4 would not result in any major long-term impacts or cumulative effects. In any given year, water would be transferred from areas with excess water to areas in demand within a single water year to support existing croplands or M&I facilities. In the case of exchanges, a like amount of water is returned to the same contactor and service area. Any impacts would be short-term and no increases or decreases of water would occur within the service area. No increases or decreases in diversions from reservoirs or waterways would occur, although the timing could change. Overall water supplies would not change.

It is possible the transfers could free up SWP or other water supplies to be transferred to other areas including south of the San Joaquin Valley. These transfers are outside of Reclamation's authority for approval. Alternatives 2, 3, and 4 are short-term actions and would occur when water is in excess to the needs of the landowners within the water contractors. The cumulative impact of water leaving the project area is small due to the short-term action and uncertainty of available water supplies to transfer. In some cases Alternatives 2, 3, or 4 could trigger other approvals including, but not limited to, changes in places of use and conveyance agreements. Other approvals involving CVP water are outside the scope of this EA. Each transfer and exchange proposal would require separate environmental review prior to approval. Reclamation does not have approval authority over non-CVP water supplies.

3.2 Groundwater Resources

3.2.1 Affected Environment

The action area lies in the Tulare Lake Hydrologic Region. In 1995, the California Water Plan Update (Bulletin 160-98) (DWR 1998) estimated a groundwater overdraft for California of 1.5 million af a year, with most of the overdraft being in the Tulare Lake, San Joaquin River and Central Coast Hydrologic Regions. With existing facilities and programs, predicted overdraft for the Tulare Lake Hydrologic Region for the year 2020 (both average and drought year) is 670,000 af (Bulletin 160-98) (DWR 1998). Usable storage capacity for the Tulare Lake Hydrologic Region is estimated to be 28 million af. The perennial yield is 4.6 million afy.

Hydrologic Regions are broken down into groundwater basins and then sub-basins. Within the Tulare Lake Hydrologic Region, the service areas of the contractors and districts fall within the San Joaquin Valley Groundwater Basin. The basins and sub-basins are discussed in more detail below (DWR 2007).

San Joaquin Valley Groundwater Basin

Kings Sub-basin This sub-basin overlaps Fresno, Kings and Tulare Counties and the following entities (considered in this EA) fall within its boundaries: Alta Irrigation District, Consolidated Irrigation District, Fresno Irrigation District, James Irrigation District, Kings River Water District, Laguna Irrigation District, Liberty Water District, Mid-Valley Water District, Riverdale Irrigation District and Raisin City Water District. Kings Sub-basin has a surface area of 976,000 acres. (Reclamation 2005)

The San Joaquin River borders the Kings Sub-basin on the north and the Kings River is within the sub-basin. Fresno Slough and James Bypass are located along the western edge and connect the San Joaquin and Kings Rivers.

Silts and clays in the Kings Sub-basin serve to restrict vertical water movement. The Corcoran Clay is found in the western portion of the sub-basin. Because of these clay layers, the groundwater below is confined. However, there is recharge from river/stream/canal seepage, some deep percolation of irrigation water and intentional recharge. Several of the districts in the Kings Sub-basin that are considered in this EA use intentional recharge.

There is the potential for subsurface flow to the south and west, depending on groundwater conditions in neighboring sub-basins, such as the Westside Sub-basin. Localized groundwater depressions and also mounding near the Kings River can complicate groundwater flow patterns. (Reclamation 2005)

Kaweah Sub-basin The Kaweah Sub-basin lies within Kings and Tulare Counties. The water entities considered in this EA that are found here are: Corcoran Irrigation District, Kaweah-Delta Water Conservation District, Lakeside Irrigation Water District, Tulare Irrigation District and Stone Corral Irrigation District. The sub-basin's surface area is 446,000 acres.

Kaweah Sub-basin is bounded on the north by the Kings Sub-basin, by the Tule Sub-basin to the south and by the KRCD to the west. The Sierra Nevada foothills lie to the east. The Kaweah and St. Johns Rivers are the major rivers in the sub-basin. The Kaweah River is the primary source of recharge. Lakeside Irrigation District, Kaweah-Delta Water Conservation District and Tulare Irrigation District practice intentional recharge. The Corcoran Clay underlies the western half of the sub-basin.

Most groundwater flow is to the southwest. In 1999 (DWR 2003 cited in Bulletin 118), there were small groundwater depressions north and south of Visalia and at the northwest corner of the sub-basin. A mound was present in the central western portion of the basin. There do not appear to be any horizontal groundwater barriers in the Kaweah Sub-basin. Land subsidence of up to four feet has occurred in the past in different areas within the western and southern portions of the sub-basin (DWR 2003).

Tule Sub-basin This sub-basin is in Tulare County. Entities in the Tule sub-basin considered in this EA include: The majority of DCTRA, Angiola Water District, Lower Tule River Irrigation District, Pixley Irrigation District, Porterville Irrigation District, Saucelito Irrigation District and Terra Bella Irrigation District. The surface area of the sub-basin is 467,000 acres.

The Tule Sub-basin is generally bounded on the west by the Tulare County line, which is shared with the Tulare Lake Sub-basin. The Kaweah Sub-basin is to the north and the Kern County Sub-basin lies to the south. To the east are the Sierra Nevada foothills. The Tule and White Rivers and Deer Creek are the major rivers in the sub-basin, all of which historically emptied into Tulare Lake. Recharge is from rivers and streams and deep percolation of irrigation water (DWR 1995). Within the Tulare Formation, the Corcoran Clay underlies a portion of the sub-basin.

Most groundwater flow is westward (DWR 2003). Depth to groundwater increases with distance from the Tule and White Rivers. Horizontal groundwater barriers do not appear to exist in the sub-basin. Land subsidence of 12 to 16 feet has occurred in the past (DWR 2003).

Tulare Lake Sub-basin Tulare Lake Sub-basin is in Kings County. Districts considered in this EA that lie in this sub-basin are: Kings County Water District, Angiola Water District, Corcoran Irrigation District, Dudley Ridge Water District, Empire West Side Irrigation District, Salyer Water District, Stratford Irrigation District and Tulare Lake Basin Water Storage District. The sub-basin has an area of 524,000 acres.

The Tulare Lake Sub-basin is bounded on the west by the California Aqueduct, the Westside Sub-basin and the Kettleman Hills. The Kings Sub-basin is to the north and the Kaweah and Tule Sub-basins are to the east. The southern half or so of the sub-basin is in the bed of the

former Tulare Lake. Recharge is primarily from rivers and streams and deep percolation of irrigation water (DWR 1995). The Corcoran Clay underlies the sub-basin.

Groundwater flow is generally to the southwest, in the direction of the former Tulare Lake. There do not appear to be any horizontal groundwater barriers in the sub-basin. Land subsidence of one to four feet has occurred (DWR 2003).

Kern County Sub-basin Kern County Sub-basin is within Kern County. Buena Vista Water Storage District, Cawelo Water District, City of Bakersfield, Kern County Water Agency, Kern Delta Water District, KWB, Rosedale-Rio Bravo, Shafter-Wasco Irrigation District and West Kern Water District are included in this sub-basin. The surface area of the sub-basin is 1,945,000 acres.

Kern County Sub-basin is bounded on the north by the Tule Sub-basin and the Kern County line. The Sierra Nevada foothills/Tehachapi Mountains are to the east and southeast. The main rivers in the sub-basin are the Kern River and Poso Creek.

The Edison, Pond-Poso and White Wolf faults are barriers to groundwater movement, as are the Elk Hills and the Buena Vista Hills. The Corcoran Clay is present from the Kern River Outlet Channel on the west and throughout the central and much of the eastern sub-basin (DWR 2003). There is some recharge through seepage from the Kern River and streams along the eastern boundary, but most recharge is from irrigation water (DWR 1995).

Storage and Production

The usable storage capacity is estimated to be approximately 28 million af for the Tulare Lake Region. The Department of Water Resources (DWR) estimated a level of groundwater extraction that would not lower groundwater levels over the long-term (perennial yield) to be approximately 4.6 million afy for the Tulare Lake Region. (The perennial yield is directly dependent upon the amount of recharge received by the groundwater basin, which may be different in the future than it has been in the past.)

Groundwater storage in San Joaquin Valley reached a low point in 1978, as a result of the 1976-1977 drought period. By the early 1980s, groundwater storage returned to pre-drought conditions. Groundwater storage again declined during the 1987-1992 droughts. At the end of the 1990 water year, groundwater storage was similar to 1978 conditions. These area-wide groundwater storage fluctuations in the San Joaquin Valley basin are not uncommon.

Groundwater pumping ranged from 1.6 million af in 1922 to 4.7 million af in 1977. Groundwater pumping rose steadily through the 1970s, and has varied greatly from year to year depending on hydrologic conditions. The largest year-to-year fluctuation occurred during the 1976-1977 drought period. Immediately following the drought, hydrologic wet and above

normal conditions for the years 1978 to 1980 resulted in reduced pumping. However, urban growth during the 1980s has contributed to an increase in groundwater usage and hardening of the demand that develops. In addition, increased groundwater pumping in the late 1980s and early 1990s occurred as a result of reduced surface water deliveries to CVP water users due to the imposition of environmental requirements on the operation of surface water facilities, and critically dry hydrologic conditions during the 1987 to 1992 drought period. DWR estimated that recent groundwater pumping (1990) in the Tulare Lake Region at 5.2 million af. This exceeds the estimated perennial yield in the Tulare Lake Region by approximately 630,000 af. All of the basins within the Tulare Lake Regions experienced some overdraft.

Groundwater Levels

Expansion of agricultural practices between 1920 and 1950 caused declines in groundwater levels in many areas of the San Joaquin River Region. Along the east side of the San Joaquin River Region declines have ranged between 40 and 80 feet since pre-1860 development conditions.

Groundwater levels in the semi-confined aquifer between spring 1970 and spring 1980 declined in response to 1976-1977 drought conditions and recovered to near pre-drought levels by 1980. The 1987-1992 drought resulted in substantial deficiencies in surface water deliveries and corresponding increases in groundwater pumping. Water level declines of 20 to 30 feet are common throughout most of the central and eastern parts of the San Joaquin Valley.

During the 10-year period from Spring 1970 to Spring 1980, semi-confined groundwater levels generally dropped in the Tulare Lake Region. In portions of Fresno, Kings, Kern, and Tulare Counties, semi-confined groundwater levels dropped as much as 50 feet since spring 1970. The semi-confined aquifer in the Tulare Lake Region showed little change between spring 1980 and spring 1988.

Groundwater Quality

Groundwater quality conditions in the Tulare Lake Region vary throughout the area. A description of specific water quality parameters is provided below.

Total Dissolved Solids (TDS) TDS concentrations vary considerably in the San Joaquin Region depending upon the groundwater zone. Characteristics of TDS in the Tulare Lake Region are similar to those occurring in the San Joaquin River Region; however, the eastern San Joaquin Valley has lower TDS concentrations. This distribution reflects the low concentrations of dissolved solids in recharge water that originates in the Sierra Nevada, and the predominant regional groundwater flow pattern. Typically, on the east side, TDS concentrations do not exceed 500 mg/L.

Boron In the southern portion of the Tulare Lake Region, high concentrations of boron are generally found in areas southwest to Bakersfield (greater than 3 mg/L) and southeast of Bakersfield (1 to 4 mg/L). However, boron in groundwater in the Friant Division area is not identified as a concern.

Nitrates-Nitrates Several small areas of the Tulare Lake Region contain nitrate-nitrate concentrations in excess of 10 mg/L. These include areas south and north of Bakersfield, around the Fresno metropolitan area and scattered areas of the Sierra Nevada foothills in the Hanford-Visalia area. Municipal use of groundwater as a drinking water supply is also impaired due to elevated nitrate concentrations in the Tulare Lake Region.

Arsenic In the Tulare Lake Region agricultural use of groundwater is impaired due to elevated arsenic concentration in the Tulare Lake Region, particularly in areas of the Kern Basin near Bakersfield. Groundwater in the Friant Division area is not identified as a concern for elevated concentrations of arsenic.

Dibromochloropropane (DBCP) DBCP has been detected in many groundwater wells in the Tulare Lake Region. Municipal use of groundwater as drinking water supply is impaired due to elevated DBCP concentrations near the cities of Visalia and Bakersfield.

3.2.2 Groundwater Resources

No Action Alternative – Alternative 1

The No Action Alternative would likely result in continued groundwater pumping and continued decline of the groundwater table.

Transfer Only Alternative - Alternative 2

Under Alternative 2, the transfer of water to areas with insufficient surface water supplies would result in less pumping of groundwater. Groundwater overdraft is considered a threat to the water quality and quantity in the San Joaquin Valley, therefore this would constitute a beneficial effect. Since most water demands are met with existing supplies in wet years, transfers are less likely to occur in these hydrologic years. The full 70,000 af of CVP water is unlikely to be available to transfer to areas with overdraft conditions in dry years. Therefore, groundwater use would likely increase in dry years, however to a slightly less extent than in the past. To the extent that up to 70,000 af of water is available and transferred to areas with overdraft conditions, groundwater recharge opportunities could improve. This benefit would be small compared to the groundwater aquifer overall and would not lead to major changes in groundwater quality and quantity.

Exchange Only Alternative - Alternative 3

Under Alternative 3, the exchange of water would not affect the level of groundwater being pumped or naturally recharging into the groundwater basins. Although the timing may differ,

similar amounts of water would be delivered resulting in the continuation of existing conditions. The timing of surface water deliveries to support crops grown at different times of the year could reduce the need to rely on groundwater recharge and later extraction. This benefit would be strictly financial and would not impact water resources. Overall water supplies are not changing.

Preferred Alternative - Alternative 4

Alternative 4 would therefore have some degree of beneficial effects on the quantity and quality of groundwater, and would have no adverse impacts.

Cumulative Impacts

Groundwater sources are included in overall contractor water supply management (conjunctive use). Management strategies include protecting all available supplies to support the landowners and economy. Groundwater supplies are typically pumped when surface water supplies are not sufficient to meet the demands. Increases in pumping groundwater occur in dry seasons when surface water supplies are not available. Alternatives 2, 3 or 4 may reduce groundwater pumping slightly on a localized basis throughout the action area; however, cumulatively this action would have only a minor effect on the current management and use of groundwater resources in the project area due to their short duration and small quantity.

3.3 Land Use

3.3.1 Affected Environment

The action area includes the southern portion of the San Joaquin Valley and includes portions of Fresno, Kings, and Kern Counties. The major cities include Fresno, Visalia and Bakersfield. The development of urban and agricultural lands has caused the loss of natural habitat. The land use between Fresno and Bakersfield along the Hwy 99 corridor, along the eastern boundary of the action area, is mainly agricultural lands supporting orchards, vineyards, croplands, pastures and dairies. Land use inside the western boundaries of the area support mainly orchards, vineyards, croplands, pastures, intermittent with swaths of grasslands, shrub, brush or mixed rangeland. Land use on the south and southeast boundaries of the area near Bakersfield is intensely cultivated, primarily by orchards, vineyards, field crops, pastures and intermittent swaths of grasslands or mixed rangelands.

3.3.2 Environmental Consequences

No Action Alternative– Alternative 1

The No Action Alternative would also not support any specific land uses changes or impacts, as no new water supplies to support any changes would be available. Current land uses would be supported by the continued pumping of groundwater which will be available through the foreseeable future. Land owners might seek outside sources of water to change land use

patterns, but such sources are not within the scope of this document to analyze. No impacts to land use are foreseen.

Transfer Only Alternative - Alternative 2

Under Alternative 2, land use changes toward urbanization or permanent crops would require long term reliability to sustain and would not be supported by one-year transfers. There would, therefore, be no impacts to land use as a result of this alternative.

Exchange Only Alternative - Alternative 3

Under Alternative 3 no new water supplies would be created, and thus there would be no ability to support any changes in land use. No impacts to land use would occur.

Preferred Alternative - Alternative 4

Alternative 4 would be expected to combine the effects of the first two alternatives. As there are no impacts to land use resulting from the first two alternatives, there would be none associated with Alternative 4.

Cumulative Impacts

Development and urbanization is occurring throughout the project area. The transfers and exchanges would not provide a long-term or reliable supply to support long-term land use changes. Hydrological or economical conditions would likely drive landowners to fallow lands. These conditions are temporary and are not the result of the Alternatives 2, 3 and 4. Therefore, the Proposed Action Alternatives do not contribute to cumulative impacts to land uses.

3.4 Biological Resources

3.4.1 Affected Environment

This section describes the biological resources within in the study area. The action area is the southern San Joaquin Valley and includes those portions of Fresno, Kings, Tulare, and Kern counties that encompass the service area boundaries of the participating NCVPC and CVP contractors.

The following list (See Table 2) was obtained on January 11, 2008, by accessing the U.S. Fish and Wildlife Service (Service) Database: http://www.fws.gov/pacific/sacramento/es/spp_lists/auto_list.cfm. The list is for the following USGS 7½ minute quadrangles (quads): Conner, Millux, Mouth of Kern, Tupman, East Elk Hills, Buttonwillow, Lokern, Semitropic, Lost Hills, Fresno South, Malaga, Sanger, Wahtoke, Reedley, Selma, Conejo, Caruthers, Raisin, Burris Park, Laton, Guernsey, Waukena, El Rico Ranch, Corcoran, Hacienda Ranch NE, McFarland, Deepwell Ranch, Famoso, North Of Oildale, Rosedale, Oildale, Stokes Mountain, Ivanhoe, Tulare, Cairns Corner, Corcoran, Taylor Weir, Tipton, Woodville, Porterville, Success Dam, Alpaugh, Pixley, Sausalito School, Ducor,

Fountain Springs, Stevens, Gosford, Lamont, Millux, Weedpatch, Arvin, Coal Oil Canyon, Traver, Monson, Ivanhoe, Woodlake, Hanford, Remnoy, Goshen, Visalia, Exeter, Rocky Hill, Paige, Tulare, Lone Tree Well, Hacienda Ranch, Allensworth, Delano West, Lost Hills NW, Lost Hills NE, Wasco NW, Pond, McFarland, Semitropic, Wasco SW, Wasco, Belridge, Rio Bravo, Oil Center, West Elk Hills, Pentland, Conner SW, Mettler, Tejon Hills, Kettleman City, Los Veijos, Hanford, Remnoy, Lemoore, Hanford, Remnoy, Goshen, Burrel, Riverdale, Laton, Wasco NW, Buttonwillow, Westhaven, Stratford, Stratford SE, Dudley Ridge, Hacienda Ranch NW, Alpaugh, West Camp, Piedra, Tranquillity, Jamesan, Kerman, Kearney Park, Orange Cove North, Cantua Creek, San Joaquin, Helm, Orange Cove South, Five Points . (FWS 2007 and .Reclamation 2005).

Table 2 below contains common and scientific names, current federal listing status and a column for critical habitat.

Table 2 Threatened and Endangered Species and Critical Habitat from the Service's Species List

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	CRITICAL HABITAT
Bakersfield cactus	*Opuntia treleasei* (= *Opuntia basilaris treleasei*)	Endangered	No
blunt-nosed leopard lizard	*Gambelia silus*	Endangered	No
Buena Vista Lake shrew	*Sorex ornatus relictus*	Endangered	Designated
California condor	*Gymnogyps californianus*	Endangered	Designated
California jewelflower	*Caulanthus californicus*	Endangered	No
California red-legged frog	*Rana aurora draytonii*	Threatened	Designated
California tiger salamander	*Ambystoma californiense*	Threatened	Designated
delta smelt	*Hypomesus transpacificus*	Threatened	Designated
Central Valley steelhead (NMFS)	Oncorhynchus mykiss	Threatened	Designated
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	Endangered	Designated
giant garter snake	*Thamnophis gigas*	Threatened	No
giant kangaroo rat	*Dipodomys ingens*	Endangered	No
Hoover's spurge	*Chamaesyce hooveri*	Threatened	Designated
Springville clarkia	Clarkia springvillensis	Threatened	No
Keck's checker-mallow (=checkerbloom)	*Sidalcea keckii*	Endangered	Designated

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	CRITICAL HABITAT
Kern mallow	*Eremalche kernensis*	Endangered	No
mountain yellow-legged frog	*Rana muscosa*	Candidate	N/A
palmate-bracted bird's-beak	*Cordylanthus palmatus*	Endangered	No
San Joaquin adobe sunburst	*Pseudobahia peirsonii*	Threatened	No
San Joaquin kit fox	*Vulpes macrotis mutica*	Endangered	No
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	Endangered	Designated
San Joaquin woolly-threads	*Monolopia congdonii*	Endangered	No
southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	No
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	Endangered	No
vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened	Designated
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Threatened	Designated
vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered	Designated
Conservancy fairy shrimp	Branchinecta conservatio	Endangered	Designated
western snowy plover	*Charadrius alexandrinus nivosus*	Threatened (Proposed for Delisting)	Designated

Beginning in 1991, Service BOs specified how water should be delivered to most of the Friant water service contractors to avoid jeopardy to endangered and threatened species and committed Reclamation to developing and implementing a long-term program to address the needs of listed endangered species in the San Joaquin Valley. The *Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contractors*, dated January 19, 2001, is the most recent biological opinion issued by the Service for the Friant water service contractors.

The area considered by this project contains historical habitat for numerous species of wildlife and plants, as well as some fisheries. Critical habitat for the Buena Vista Lake shrew, the California condor, California tiger salamander, Hoover's spurge, San Joaquin Valley Orcutt grass, the vernal pool tadpole shrimp and vernal pool fairy shrimp occur in the area of effect. The San Joaquin Valley has a higher density of federally listed species than any other location

within the continental United States, as well as species of concern and state listed species. Non listed species are also abundant throughout the project area. Threats to wildlife primarily come from loss of habitat related to agricultural and urban development throughout the San Joaquin Valley.

3.4.2 Environmental Consequences

No Action Alternative – Alternative 1

Under the No Action Alternative, there could be some land use changes that might affect the quality or amount of habitat for sensitive species. Reclamation has no specific information on which if any changes might occur, but it generally the case that there is still some loss of native lands to agricultural or urban use that continues to occur in and around the southern San Joaquin Valley, as well as urban development of agricultural lands. However, given the short time frame for the proposed action, the magnitude of these changes would be expected to be relatively low.

Transfer Only Alternative - Alternative 2

No impacts to biolofical resources would occur under Alternative 2. The contractors in this Proposed Action would sign binding letters of agreement restricting the use of this water and including the requirements described above to avoid environmental impacts. The short duration of the water availability, the requirement that no native lands be converted without consultation with Service, and the stringent requirements for transfers under applicable laws would preclude any impacts to wildlife.

Transferred water would be conveyed in existing facilities and no new construction or land disturbing activities would occur. Farming practices would not change. Decisions to fallow lands are based on fluctuating agricultural economical and hydrological conditions. The decision to fallow lands could free up water to be redistributed within the water contractor's own service area or be transferred. Reclamation determines annual allocations to CVP contractors based on hydrological conditions and after meeting water quality, and fish and wildlife requirements. The amount of water diverted from reservoirs or waterways would not change although the timing may differ. Habitat types would not change from past conditions. Lands that have been fallowed for three consecutive years would require biological surveys prior to disking. Approval of the transfers of water would not interfere with the requirements or ability of Reclamation to make water available for fish and wildlife uses mandated by CVPIA or the various Biological Opinions within the area.

Exchange Only Alternative - Alternative 3

There would also be no impacts associated with approval of Alternative 3, as the water supplies would not change, the water deliveries would not result in more water or less water being delivered to any given area, and there would be no new facilities being constructed to deliver the water.

Preferred Alternative - Alternative 4

Alternative 4, as above, would be expected to combine the effects of the first two alternatives. As there are no impacts to biological resources under those alternatives, there would be none associated with Alternative 4.

Cumulative Impacts

As neither Alternative 2, 3, or 4 would result in any direct or indirect impacts on biological resources, none of the alternatives would contribute cumulatively to impacts on these resources.

Alternatives 2, 3 and 4 are short-term actions. No new construction or ground disturbing activities would occur. Land fallowing could occur as a result of hydrological or agricultural market fluctuations. These actions would not lead to long-term changes in foraging or shelter opportunities for wildlife. No additional water supplies would be diverted. Reclamation allocates water each year based on hydrological conditions. Allocations are made after considerations to protect water quality and aquatic species. Alternatives 2, 3 and 4 do not interfere with the Environmental Water Account or water service decisions to support wetlands, refuges, fish and wildlife. It is anticipated the transfers and exchanges would expand the ability to improve water management in the project area. Alternatives 2, 3 and 4 do not result in major cumulative impacts to biological resources.

3.5 Socioeconomic Resources

3.5.1 Affected Environment

The service area of the CVP contractors and NCVPC's is primarily rural agricultural land; however, there are many communities across the area where farm workers reside. The small businesses that support agriculture such as feed and fertilizer sales, machinery sales and service, pesticide applicators, transport, packaging, marketing, and so forth rely on the efficient and cost effective use of water in the surrounding agricultural lands to sustain the agriculturally based economy. The cost and availability of water has historically had a direct secondary economic impact on the communities of the area as it can drive the type of crop grown or the potential fallowing of land.

3.5.2 Environmental Consequences

No Action Alternative - Alternative 1

The No Action Alternative would result in no changes from the existing conditions.

Transfer Only Alternative - Alternative 2

Under Alternative 2 there would be no major impacts to socioeconomics. The short-term availability of the transfer water would not affect the seasonal agricultural patterns that support the local communities or the residents around them. The businesses that support agricultural

activities would not be affected by the relatively small temporary increase in water supply. To the extent long-term CVP contractors are able to optimize the use of their contract water supplies through transfers and exchanges in wet years, which would maintain or reduce depths to groundwater in nearby NCVP districts, energy use and pumping costs may be reduced for local communities and individual homeowners as well as the farmers. Accordingly, there may be minor incidental benefits to local communities and individual homeowners due to reduced groundwater pumping costs.

Exchange Only Alternative - Alternative 3

Alternative 3 allows for equal amounts of water to be swapped to improve timing of deliveries for the type of crops grown. The socioeconomic conditions would be maintained as in the past providing a slight benefit for farmers to continue to compete in the agricultural market.

Preferred Alternative - Alternative 4

Alternative 4 would, therefore, also have slight benefits to agricultural operators, and no impacts to agriculture supported businesses or employees. Impacts to energy use and pumping costs would be similar to Alternative 2.

Cumulative Impacts

Exchanges are not expected to cause major cumulative impacts on socioeconomical conditions. There may be a slight economic benefit to the farmers who are the end users of the water, in that the value of water may provide an incentive to fallow some lands to make water available to exchange.

Alternatives 2 and 4 could facilitate transfers to areas outside of the action area. These transfers are beyond Reclamation's authority. The transfers would be short-term and would not lead to long-term impacts on water supplies in central or southern California.

As water transfers opportunities are expanded, there would be less pressure to fallow lands due to local water availability. Existing economic conditions would continue as existing farming practices are maintained through water delivery flexibility.

Alternatives 2, 3 and 4 do not change the amount of water diverted for agricultural or M&I uses each year. Diversions and allocations are made annually based on the hydrological forecasts and after considerations for water quality, American Indian fishing rights, fish and wildlife purposes have been met. None of the alternatives would result in cumulative impacts to socioeconomical conditions.

Depending on each proposed transfer or exchange, Alternatives 2, 3 and 4 could result in increases or decreases in pumping and costs associated with conveying the water to the end user.

These changes would likely offset the need to pump groundwater. Pumping and conveying the water would not result in major cumulative costs for water or power.

Alternatives 2, 3 and 4 do not trigger or result in long-term decisions such as contract assignments or retirement of lands. Contract assignments and land retirements are the result of undesirable economic or environmental conditions. Landowners are unable to compete with surrounding farmers due to the unsatisfactory conditions of soils and lands in their areas. These actions are not the result of unavailable water supplies. Water transfers often do occur outside of these areas under interim conditions until a permanent decision is made such as contract assignments and/or land retirements. In some cases, the water contractor redistributes the water within its own boundaries. In other cases, the water contractor no longer needs the water and transfers most of the water out. The Proposed Alternatives are not a contributing factor in these permanent changes although they may occur as part of the strategy to manage the overall water supplies. Alternatives 2, 3 and 4 do not contribute to cumulative impacts or changes to socioeconomical conditions.

3.6 Cultural Resources

3.6.1 Affected Environment

Cultural resources include archaeological sites, architectural structures, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation which outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking listed on cultural resources on or eligible for inclusion in the National Register of Historic Places. The Section 106 process is outlined in the Federal regulations at 36 CFR Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties.

Cultural resources in this area are generally archeological that are often found in association with water courses. It is possible that some cultural resources lie undiscovered across the San Joaquin valley, but there has been no systematic study. Much of the area has been cultivated for decades and routinely tilled and irrigated. Any archaeological resources that may be present have been impacted by these agricultural practices.

The CVP is being nominated to the National Register. Contributing elements to the larger CVP nomination include Friant Dam and the FKC. Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. The FKC carries water over

151.8 miles in a southerly direction from Millerton Lake to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties. Construction of the canal began in 1945 and was completed in 1951.

3.6.2 Environmental Consequences

No Action Alternative – Alternative 1

Alternative 1 will not result in modification to existing facilities or construction of new facilities nor bring lands into new agricultural production. In the event that water would be used for M&I purposes, this water would be used for existing facilities. Alternative 1 has no potential to affect historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1).

Transfer Only Alternative - Alternative 2

The effects will be the same as described under Alternative 1.

Exchange Only Alternative - Alternative 3

The effects will be the same as described under Alternative 1.

Preferred Alternative - Alternative 4

Alternative 4 is a combination of Alternative 2 and 3, therefore, the effects are the same as described under Alternative 1

Cumulative Impacts

There are no cumulative impacts associated with this action that would affect cultural resources.

3.7 Indian Trust Assets

3.7.1 Affected Environment

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States (US) for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITAs can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the US is the trustee. By definition, ITAs cannot be sold, leased, or otherwise encumbered without approval of the US. The characterization and application of the US trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

Consistent with President William J. Clinton's 1994 memorandum, "Government-to-Government Relations with Native American Tribal Governments," Reclamation assesses the effect of its programs on tribal trust resources and federally-recognized tribal governments.

Reclamation is tasked to actively engage federally-recognized tribal governments and consult with such tribes on government-to-government level (59 Federal Register 1994) when its actions affect ITAs. The Department of the Interior (DOI) Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITAs to the heads of bureaus and offices. Part 512, Chapter 2 of the Departmental Manual states that it is the policy of the Department of the Interior to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members. All bureaus are responsible for, among other things, identifying any impact of their plans, projects, programs or activities on Indian trust assets; ensuring that potential impacts are explicitly addressed in planning, decision, and operational documents; and consulting with recognized tribes who may be affected by proposed activities.

There are no Indian Trust Assets in the project area.

3.7.2 Environmental Consequences

No Action Alternative – Alternative 1
Since there are no ITAs in the study area, there are no impacts.

Transfer Only Alternative - Alternative 2
Alternative 2 does not result in additional diversions of water supplies and is similar to the No Action Alternative. There are no tribes possessing legal property interests held in trust by the United States in the water involved with this action, therefore ITAs are not affected by this action. Alternative 2 would not interfere with water deliveries to Indian Reservations. Annual allocations of CVP water are made after factoring in American Indian fishing rights.

Exchange Only Alternative - Alternative 3
Since there are no ITAs in the action area, there are no impacts.

Preferred Alternative - Alternative 4
Since there are no ITAs in the study area, therefore, there are no impacts.

Cumulative Effects
Since there are no ITAs in the study area therefore there are no cumulative impacts to this resource.

3.8 Environmental Justice

3.8.1 Affected Environment
Executive Order 12898 requires all NEPA documents to consider the effects of the Proposed Action on disadvantaged and minority populations. Many of the cities and towns within the San

Joaquin Valley are farming communities, and include high percentages of minority populations. Some areas are centers for migrant laborers whose livelihood depends exclusively on the seasonal agricultural practices providing them with sufficient income to support themselves and their families.

3.8.2 Environmental Consequences

No Action Alternative – Alternative 1

The No Action Alternative would result in less flexibility to deliver water to meet crops demands, however, the amount of water is small when compared to the overall water supplies. Farmers would likely continue to pump groundwater to sustain their current farming practices.

Transfer Only Alternative - Alternative 2

Under Alternative 2, there would be no major impacts to low income or disadvantaged populations. Water is moved from areas with excess supplies to areas with insufficient supplies. This flexibility in water management and deliveries allows farmers to maintain existing croplands and employment opportunities for farm workers.

To the extent long-term CVP contractors are able to optimize the use of their contract water supplies through transfers and exchanges in wet years, which would maintain or reduce depths to groundwater in nearby NCVP districts, energy use and pumping costs may be reduced for local communities and individual homeowners as well as the farmers. Accordingly, there may be minor incidental benefits to local communities and individual homeowners due to reduced groundwater pumping costs. Since local communities contain disadvantaged and low income citizenry there may be slight positive impacts to these populations.

Exchange Only Alternative - Alternative 3

Under Alternative 3, there would be no impacts to environmental justice, as the amount of water available for agriculture would not change, thereby not supporting any changes in practices that would result in impacts to disadvantaged or minority populations.

Preferred Alternative - Alternative 4

Alternative 4 is a combination of Alternatives 2 and 3. Affects are the same as discussed under these alternatives. Employment opportunities for low income or disadvantaged populations would be maintained so far as hydrological conditions allow for available water supplies to transfer and exchange.

Cumulative Effects

None of the alternatives result in increases or decreases of overall water supplies. None of the alternatives contribute to changes from past agricultural practices. Hydrological conditions could result in less water available to irrigate farms and support M&I uses. Under dry conditions, fewer

lands may be irrigated and job opportunities for low income farm workers could be reduced; however, this would be within historic fluctuations. The transfers and exchanges allow available water supplies to be redistributed within the same geographical area. Depending on the severity of dry conditions and lack of surface water, and volume of groundwater would be pumped, transfers and exchanges would be proposed to allow deliveries of water to the highest and beneficial use. Alternatives 2, 3 and 4 are water management tools that could maintain some crops and jobs for farm laborers. Alternatives 2, 3 and 4 do not change overall water supplies and do not result in major cumulative impacts for job opportunities for low income wage earners.

Section 4 Consultation and Coordination

4.1 Fish and Wildlife Coordination Act (16 USC § 651 et seq.)

The Fish and Wildlife Coordination Act requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The implementation of the CVPIA, of which this action is a part, has been jointly analyzed by Reclamation and the Service and is being jointly implemented. The Proposed Action does not involve construction projects. Therefore, the FWCA does not apply.

4.2 Endangered Species Act (16 USC. § 1521 et seq.)

Section 7 of the ESA requires federal agencies, in consultation with the Secretaries of Commerce and the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

The Proposed Action Alternatives would support existing uses and conditions. No construction or new facilities would be required to convey this water. Decisions to fallow lands are based on fluctuating hydrological and agricultural market conditions. Transfers and exchanges are typical methods for delivering water to areas with the highest beneficial use, i.e. permanent crops when water supplies are insufficient to meet demands.

Reclamation has concluded that the Proposed Action Alterntives would not affect any listed or proposed for listing threatened or endangered species or any proposed or designated critical habitat. This conclusion is based on the short-term nature of the transfers and exchanges, which would not result in major changes to habitat types, shelter, or foraging opportunities for biological resources, as well as on the conditions given in the following paragraph.

No native lands would be converted or cultivated with CVP water. The water would not be used for land conversion. Lands that have been fallowed for three consecutive years would require biological surveys prior to disking. If sensitive biological resources are discovered, additional environmental analysis and consultations may be required in compliance with applicable laws prior to applying CVP water to these lands. These conditions will protect listed species (both the indivjduals and their habitat) and the primary constituent elements of the critical habitats found within the area of effect.

4.3 National Historic Preservation Act (15 USC § 470 et seq.)

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of federal undertakings on historical properties, properties determined eligible for inclusion in the National Register. The Proposed Actions have no potential to affect historic properties within the NCVPC's service areas.

4.4 Migratory Bird Treaty Act (16 USC Sec. § 703 et seq.)

The Migratory Bird Treaty Act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior (Secretary) may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action would have no effect on birds protected by the Migratory Bird Treaty Act.

4.6 Executive Order 11988 – Floodplain Management and Executive Order 11990 - Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands. This project would not affect either concern.

Section 5 List of Preparers and Reviewers

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Appendix A

Non Long-Term CVP Contractors

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Non-CVP Contractors

The following is a list of NCVPC and descriptions:

- Buena Vista Water Storage District
- Cawelo Water District
- Consolidated Irrigation District
- Corcoran Irrigation District
- Deer Creek & Tule River Authority
- Kaweah Delta Water Conservation District
- Kern County Water Agency
- Kern Delta Water District
- KWB
- Kings County Water District
- KRCD
- Lakeside Irrigation District
- Liberty Water District
- North Kern Water Storage District
- Rosedale-Rio Bravo Water Storage District
- Semitropic Water Storage District
- Tulare Lake Basin Water Storage District

Buena Vista Water Storage District

Buena Vista Water Storage District (BVWSD) lies in the trough of the southern San Joaquin Valley in Kern County. BVWSD lands are within a portion of the lower Kern River watershed, where historic runoff created the heavy clay soils from former swamp and overflow lands north of Buena Vista Lake. The area lies on the west side of the valley floor, about 16 miles west of the city of Bakersfield. The unincorporated town site of Buttonwillow (population 1,500) is situated in the geographical center of BVWSD, however BVWSD does not supply any M&I water. BVWSD 's water service area contains 48,443 acres of agricultural land. Approximately 45,500 acres of BVWSD have been built-out, and about 40,000 acres almost entirely field and row crops.

BVWSD service area is agricultural, with cotton, grain, sugar beets, and alfalfa as the principal crops. Cotton is the dominant crop, comprising about 85 percent of the annual cropping pattern. Total crop consumptive use peaked in the 1970s, averaging about 113,000 af. In the past 10 years consumptive use has declined to about 105,000 af.

In addition to Kern River water supplies BVWSD contracted with DWR via the Kern County Water Agency (KCWA) for an additional surface water supply in 1973. This contract provided for an annual firm entitlement of 21,300 af and surplus entitlement of 3,750 af. BVWSD has also been a historic user of surplus FKC flows to serve irrigation demands and for groundwater recharge programs.

BVWSD receives CVP water from the FKC out of the Kern River east of Coffee Road. The water is diverted into the City of Bakersfield's Kern River Canal, a lined canal, proceeding west

to BVWSD's Alejandro Canal, a lined canal, which proceeds south into the Buena Vista Aquatic Lakes. BVWSD diverts water from the lakes into the BVWSD 's Outlet Canal which proceeds to the BVWSD 's intake facilities and to BVWSD's canals that serve District landowners.

BVWSD can also receive FKC water directly into Kern River which proceeds west and can either be diverted from Kern River into the City of Bakersfield's 2800 acre Recharge Facilities or be diverted from Kern River into the KCWA's Pioneer Project, or proceed west to be diverted either into the District's Alejandro canal for delivery as noted above or proceed west to be diverted into the West Kern Water District/BVWSD Project and recharge facilities just west of Interstate 5 Highway.

BVWSD can also receive FKC water for banking in the Rosedale-Rio Bravo Water Storage District (RRBWSD). This is done by flowing southerly to the terminus of the FKC. At this point, the water can flow in the Kern River Channel and then flow southwesterly for two miles to RRBWSD Kern River headworks. The other option is for the water to enter the Arvin Edison bypass into the CVC and then flow southwesterly to the RRBWSD's CVC turnout No. 2.

BVWSD is geographically located adjacent to the Aqueduct and low in elevation on the Kern River Fan. BVWSD's Kern River entitlement is thus delivered by gravity from its origin in the Sierra-Nevada Mountains north east of Lake Isabella. BVWSD is a member unit under KCWA. Other members of KCWA in the Bakersfield area also have contracted for SWP water but must pump their entitlements to their service areas upslope and to the east of the San Joaquin Valley via the CVC. These circumstances lend themselves to an exchange of BVWSD Kern River water for east side member units SWP water, thus avoiding or reducing energy use and resultant pumping costs. This process also frees up CVC capacity that would otherwise be necessary for transportation of east side member units of SWP water. In order to allow maximum benefit from these exchanges, BVWSD has increased its SWP capacity by construction of a three pipe siphon Aqueduct Turnout (BV-7) having a capacity of 300 cfs. BVWSD Aqueduct capacity can now provide approximately 85-90 percent of peak system demand with a total flow capacity from the Aqueduct of approximately 800 cfs. Although the exchange programs have provided benefits to the District, salt loading is an issue since SWP water supplies carry more salinity than Kern River water. This would influence the degree of exchange volume in particular years when salinity levels are greater.

BVWSD engages in water banking programs. These banking programs generally fall under two categories. The first category would be a program designed to return water to BVWSD during a dry year when BVWSD supplies are restricted. The second category would be a program where BVWSD is providing a banking and extraction service for monetary payment or similar benefits. BVWSD wet year supplies have afforded it the ability to enter into both categories of banking programs which in turn allow BVWSD to stretch its wet year supplies into dry year payback

deliveries and thus help to balance required groundwater pumping. These programs also allow BVWSD to make more efficient use of its Kern River water supplies over the long term which in turn minimizes the loss of water from the critically overdrafted groundwater basin.

BVWSD also engages in direct groundwater recharge programs. BVWSD Kern River entitlement is dependent on the hydrologic cycles as they occur regardless of crops demands. During dry years, landowners must provide the difference between crop demands and BVWSD allocated surface deliveries via groundwater pumping from individual wells. During wet years the BVWSD is able to satisfy maximum crop demands that eliminate the use of landowner wells. Excess wet years are stored to maximize surface carryover use and followed by direct recharge, to the maximum extent possible to replenish the groundwater supply. The efficiency of managing this difference between crop demands and available water supplies ensures that the District, as a whole, is in positive balance with the groundwater basin. The main recharge areas used by BVWSD below the Enos Lane are the Kern River Bypass Area, the Kern River channel, the Main Canal, the Outlet Canal, the Tule Elk Reserve area near Tupman, and the upper reach of the Kern River Flood Channel. Recharge capacity has nearly doubled in the Kern River Bypass Area due to improvements in the West Kern/Buena Vista banking program, and in the Tule Elk Reserve area via additional distribution facilities in sloughs and other low lying areas. In addition, BVWSD is a recharge participant in the KCWA Pioneer Project and shares a first priority access to the total recharge capacity for overdraft correction.

Historically, BVWSD stored its spring runoff flows within Buena Vista Lake until the lake bottom lands were freed from the storage right in exchange for conservation storage space in Lake Isabella. This storage space was purchased by the Kern River Interests upon construction of Isabella Dam by the US Army Corps of Engineers (Corps). BVWSD owns 31.6 percent of the conservation storage space within the reservoir with flood control being the only overriding purpose. This affords BVWSD a maximum storage increment of 172,000 af of regulation space with a maximum winter carryover capability of 68,800 af. BVWSD also retained storage rights within Cells in Buena Vista Lake with a yield, after losses, of approximately 25,000 af. Pursuant to the Kern River Storage and Use of Water Agreement, BVWSD is afforded use of this facility for wet year storage of excess Kern River entitlement. In addition, BVWSD, via agreement with Kern County maintains regulation storage use of 1,800 af of space within Buena Vista Aquatic Recreation Area Lakes. Therefore, BVWSD has approximately 96,000 af of surface storage space for regulation of its surface water supplies from one year to the next.

These surface storage rights are very important to the efficient management of BVWSD 's Kern River water rights since the April-July runoff period does not coincide with BVWSD 's crop irrigation requirement which occur in the January through March pre-irrigation and the June through September summer irrigation periods. The carryover capability with Isabella reservoir and BVWSD‘s SWP entitlement allow BVWSD to provide a surface water supply for the early

pre-irrigation period even though BVWSD 's Kern River entitlement normally does not begin until the Mar-August entitlement period. The reservoir also provides peaking capability and facilitates other management practices such as the previously mentioned exchange, banking, and recharge activities.

The Buena Vista Aquatic Recreational Area lakes provide BVWSD with a very useful tool in the operational storage for regulation of both Kern River and SWP flows to BVWSD as well as some valuable surface storage. This facility receives the District's Kern River flow via the Alejandro Canal and SWP flow via turnout BV-3 while directing flows in BVWSD 's Outlet canal for use in the Buttonwillow service area. The lakes are also used to serve the Maples area and Henry Miller Water District per agreement with Kern County and upon arrangement with BVWSD.

During wet years BVWSD authorizes the sale of surplus water to reduce or avoid groundwater pumping and generate revenue to offset BVWSD operating costs. Generally, surplus water is offered to landowners within BVWSD (for use above surface allocation), to landowners adjacent to BVWSD who rely primarily on groundwater supplies, and other non-adjacent parties. Such deliveries are beneficial since they correct overdraft, raise pumping levels, and generate revenues.

BVWSD maintains inflow capability from the Kern River, the KFC and the Aqueduct. Kern River and FKC flows are delivered via the Kern River channel, the City's Kern River Canal, and BVWSD 's Main, Outlet, and Alejandro Canals. Aqueduct inflow points include BV-1B, BV-2 BV-3, BV-6, and BV-7 which provide adequate capacity to operate at near peak demand. This flexibility allows BVWSD access to large amounts of surplus water from various sources. BVWSD is also able to make isolated deliveries to the northern portion of the service area via California Aqueduct turnout BV-1B that allows for better water management within the perches water area. BVWSD also engages in reclamation, drainage control and irrigation conservation programs.

The Service lists 18 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within BVWSD. Out of the 19 species likely to occur in BVWSD five species have been sighted in BVWSD action area according to the CNDDB. *D. ingens* was known to exist in the southernmost portion of the district, but has not been sighted in recent times. The western yellow billed cuckoo was last reported in BVWSD in 1973 and the CNDDB reports the occurrence as “extirpated.” Two accounts of *S. o. relictus* are listed for BVWSD in 1991. *G. silus* was last observed in BVWSD in 1987. The western snowy-plover was last seen in BVWSD in 1978 and the CNDDB reports this occurrence as “extirpated.” Most of these species only have one or two sightings except for *T. gigas*, which has three. Kern River and associated canals may provide habitat for the giant garter snake now or sometime in the next 25

years, with expansion of populations into its historical range. This habitat may be affected by water service actions. In addition, while there are no listed sightings of *V. macrotis mutica*, the CNDDB considers the entire district to be potential habitat for the kit fox.

G. silus, C. californicus, T. gigas, D. ingens, E. kernensis, Vulpes macrotis mutica, M. congdonii and *D. n. nitratoides* all have CNDDB sightings within two miles of the service area.

BVWSD has no areas that are being actively managed as a preserve or refuge, although the Tule Elk State Reserve is used as a recharge area. BVWSD has no federally designated or proposed critical habitat.

Table 1: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within the BVWSD**.**

	Status	**CNDDB Sighting Index Number**
Chapter 2 Plants		
Caulanthus californicus - California jewelflower	FE	**20297**, **23135**, **20305**
Eremalche kernensis - Kern mallow	FE	**12749**, **2881**, **2880**, **2879**, **2446**
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	**22383**, **2747**, **2745**
Chapter 3 Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	24037, **24039**, **24056**, **24016**
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	**23906**, **23905**, **23904**, **14587**. **14588**, **14583**, **14584**, **14582**, **14578**, **14574**, **13172**
Sorex ornatus relictus - Buena Vista Lake shrew	FE	43157, 43158, **43156**
Vulpes macrotis mutica - San Joaquin kit fox	FE	43705, 32537, **27836**, **27773**, **27774**, **27691**, **27694**
Thamnophis gigas - Giant garter snake	FT	1530, 1572, 14845, **1618**
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Chapter 4 Birds		
Charadrius alexandrinus nivosus - Western snowy plover	FT	None
Reptiles		
Blunt-nosed leopard lizard	FE	55819, **8068**, **48947**, **55668**, **55387**, **55400**, **55438**, **55464**, **55462**, **55463**, **55832**, **55830**, **55839**, **55840**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None

Coccyzus americanus - Western yellow-billed cuckoo	FC	None
Falco peregrinus anatum - American peregrine falcon	FD	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Chapter 5 Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FPD	federal proposed delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 2: Land Use—Buena Vista Water Storage District
Categories are the same as shown on the Land Use Map for purpose of this analysis.
"Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more district. BVWSD s can share acreage by overlap of boundaries or a district including another district.

Buena Vista Water Storage District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	28.41	Non-Native	Yes
Residential/Commercial	11.74	Non-Native	Yes
Mixed Urban	27.75	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	6592.26	Non-Native	Yes
Orchard & Vineyard	3.70	Non-Native	Yes
Confined Feeding Operations	0.00	Non-Native	No
Idle Land	24.39	Non-Native	Yes
Water	50.57	Native	Yes
Grassland & Unknown Rangeland	230.73	Native	Yes
Shrub & Mixed Rangeland	97.56	Native	Yes
Forest	0.00	Native	No
Wetlands	2.11	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	1.53	Native	Yes
TOTAL:	7070.75		
TOTAL NATIVE:	382.50		
TOTAL NON-NATIVE:	6688.25		

Acreage shared with: KCWA, Kern Delta Water District (KDWD), KWB, RRBWSD, Semitropic Water Storage District (SWSD)

Cawelo Water District

Cawelo Water District (CWD) is located in the North-Central portion of Kern County and encompasses an area of nearly 45,000 acres. The CWD lies between State Highway 99 on the west and State Highway 65 on the east, the community of McFarland on the north and Oildale on the south. The city of Bakersfield is approximately six miles southeast of the District.

As of 2000, the total area of CWD was 45,079 acres including a service area of 33,320 acres. Land use in 2000 in the service area consisted of 29,657 acres of irrigated agriculture, 3313 acres of fallow and 350 acres devoted to other uses including waterways, residential, commercial and agriculture-related businesses.

Approximately 85 percent of the irrigated lands served by CWD are planted to trees and vines (principally grapes, citrus, deciduous fruit, and nuts).

CWD surface water supply is obtained primarily under two long-term contracts: a contract with the KCWA for SWP water and a contract with the city of Bakersfield for Kern River water. Water from these two sources has accounted for 90percent of the district's surface water supplies. CWD also purchases water from many other sources under short-term agreements as available. The imported surface water serves as a supplemental supply for irrigation within the district. Approximately 65 percent of the irrigation demands within CWD have been satisfied with imported surface water deliveries. CWD does not serve M&I water. Individual landowner wells have contributed to the remainder of the water required to irrigate crops.

CWD obtains surface water from other sources including diversions from Poso Creek when available, oil-field produced water, and CVP water through one-year temporary water service contracts when available.

CWD receives CVP surplus water from the FKC by way of the CVC and its extension, of which CWD is a 27 percent owner. The CVP water is pumped from the CVC extension through the District's pump station and conduit "A" and is discharged into the Beardsley/Lerdo Canal and conveyed to pump station "B", for delivery through the District's distribution system where it serves approximately 33,320 watered acres.

The Service lists 15 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within CWD. Out of the 16 species likely to occur in CWD, two species have been sighted in CWD according to the CNDDB. There is one recorded sighting of *V. m. mutica*; however, the CNDDB considers most of the district to be potential *V. m. mutica* habitat. Few observations for listed species are recorded within the service area.

G. silus, M. congdonii, V. m. mutica and *O. treleasei* all have CNDDB records within two miles of the service area.

CWD has no areas that are being actively managed for native habitat. CWD has no federally designated or proposed critical habitat.

Table 3: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within the Cawelo Water District.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	None
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	**16489**, **2750**, **2748**
Opuntia treleasei - Bakersfield cactus	FE	**6270**, **2984**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	None
Vulpes macrotis mutica - San Joaquin kit fox	FE	46024, **55294**, **55295**, **55298**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	27680, **27876**, **27839**, **27690**, **13112**
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None
Haliaeetus leucocephalus - Bald eagle	FT	None

	Status	CNDDB Sighting Index Number
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 4: Land Use Categories are the same as shown on the Land Use Map for purpose of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Cawelo Water District (Year 2000)			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	386	Non-Native	Yes
Residential/Commercial	1,082	Non-Native	Yes
Mixed Urban	0	Non-Native	Yes
Barren	0	Native	No
Crop & Pasture	840	Non-Native	Yes
Orchard & Vineyard	34,332	Non-Native	Yes
Confined Feeding Operations	236	Non-Native	No
Idle Land	5,379	Non-Native	Yes
Water	185	Native	Yes
Grassland & Unknown Rangeland	2,417	Native	Yes
Shrub & Mixed Rangeland	0	Native	No
Forest	0	Native	No
Wetlands	0	Native	No
Retired Farmland	0	Native	No
Riparian	222	Native	Yes
TOTAL:	45,079		
TOTAL NATIVE:	2,824		
TOTAL NON-NATIVE:	42,255		

Acreage shared with: KCWA, KWB, North Kern Water Storage District (NKWSD).

Consolidated Irrigation District

Consolidated Irrigation District (CID) has a service area of 155,000 acres serving a large portion of southeastern Fresno County and smaller areas in northeastern Kings County. CID extends from northeast of Sanger to south of Kingsburg and west of Caruthers. Communities served by CID include Sanger, Del Rey, Parlier, Fowler, Selma, Kingsburg and Caruthers. CID was a pioneer in developing groundwater recharge basins, storing water in the underground reservoirs in wet years for use (by pumping) in dry years and by those lacking access to surface water supplies in the San Joaquin Valley. CID also administers the Lone Tree Channel, a separate water delivery system. Lone Tree rights are held by approximately 80,000 acres within CID's boundaries. CID is a partner unit under KRCD) and may participate in the temporary water service actions in this BA under KRCD's auspices, if approved.

CID receives CVP water via the Kings River. Water from the FKC would be released into the Kings River and CID diverts the water approximately 100 yards downstream into the CID's system.

The Service lists 17 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within CID. Out of the 17 species likely to occur in CID, *Ambystoma californiense* has been sighted once in the CID action area according to the CNDDB, but is listed as extirpated. *Tuctoria greenei* is reported as “extirpated” in the two-mile buffer.

Reclamation has no authority over the exchangee’s non-CVP water supplies. Due to the relationship of Reclamation’s approval for water exchanges involving non-CVP water, the exchangee is limited by the criteria and environmental measures in this BA, and BO, if one is issued. It is recognized the exchangees do not have authority over privately owned wells and the use of groundwater by landowners. The water districts strive to provide affordable surface water supplies to discourage groundwater pumping. The Proposed Action would likely result in improved water management of available surface water supplies and less reliance on groundwater.

CID has no areas that are being actively managed as a preserve or refuge. CID has no federally designated or proposed critical habitat.

D. c. dimorphus has CNDDB records within two miles of the service area.

Table 5: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Consolidated Irrigation District.

	Status	CNDDB Sighting Index Number
Plants		
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Orcuttia inaequalis - San Joaquin Valley Orcutt grass	FT	None
Pseudobahia peirsonii - San Joaquin adobe sunburst	FT	None
Tuctoria greenei - Greene's tuctoria (=Orcutt grass)	FE	None
Mammals		
Dipodomys nitratoides exilis - Fresno kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	None
Vulpes macrotis mutica - San Joaquin kit fox	FE	None
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	**4065**, **4066**, **4064**, **34527**, **34535**, **34536**, **35242**, **35243**, **35244**
Lepidurus packardi - Vernal pool tadpole shrimp	FE	None
Amphibians		
Ambystoma californiense - California tiger salamander	FT	None
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *sila* - Blunt-nosed leopard lizard	FE	None
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 6: Land Use

Categories are the same as shown on the Land Use Map for purpose of this analysis

"Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Consolidated Irrigation District

Land Use Category	Acreage	Native/Non-Native	Shared Acreage
Industrial/Transportation	47.63	Non-Native	Yes
Residential/Commercial	276.84	Non-Native	Yes
Mixed Urban	809.45	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	735.70	Non-Native	Yes
Orchard & Vineyard	12536.58	Non-Native	Yes
Confined Feeding Operations	54.96	Non-Native	No
Idle Land	90.73	Non-Native	Yes
Water	48.78	Native	Yes
Grassland & Unknown Rangeland	278.42	Native	Yes
Shrub & Mixed Rangeland	0.00	Native	No
Forest	18.57	Native	No
Wetlands	34.23	Native	No
Retired Farmland	0.00	Native	No
Riparian	10.60	Native	Yes
TOTAL:	14942.5		
TOTAL NATIVE:	390.6		
TOTAL NON-NATIVE:	14551. 9		

Acreage shared with: Kings County Water District (KCWD), KRCD, Liberty Water District (LWD)

Corcoran Irrigation District

Corcoran Irrigation District (CoID) encompasses the area around the town of Corcoran, at the eastern edge of Kings County. CoID receives CVP water via the Kings River where it is diverted out of the FKC. CoID diverts the CVP water out of the Kings River into the Lakeland/Highline Canal that enters CoID at Kansas Avenue. In addition, water can enter the

Kaweah/St. John River system and can be diverted into Cross Creek which will enter CoID at Kansas Avenue.

The Service lists 12 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within CoID. Out of the 13 species likely to occur in CoID none of the species have been sighted in the CoID action area according to the CNDDB. In addition, while there are no listed sightings of *V. m. mutica*, the CNDDB considers the northeastern part of the district to be potential habitat for *V. m. mutica*.

L. packardi has a CNDDB record within two miles of the service area. CoID has no areas that are being actively managed as a preserve or refuge. CoID has no federally designated or proposed critical habitat.

Table 7: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Corcoran Irrigation District.

	Status	CNDDB Sighting Index Number
Plants		
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	None
Vulpes macrotis mutica - San Joaquin kit fox	FE	None
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Lepidurus packardi - Vernal pool tadpole shrimp	FE	**43430**
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	None
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None

Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 8: Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Corcoran Irrigation District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	103.01	Non-Native	Yes
Residential/Commercial	127.47	Non-Native	Yes
Mixed Urban	116.74	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	3729.23	Non-Native	Yes
Orchard & Vineyard	25.98	Non-Native	Yes
Confined Feeding Operations	26.37	Non-Native	No
Idle Land	28.87	Non-Native	Yes
Water	67.19	Native	Yes
Grassland & Unknown Rangeland	236.76	Native	Yes
Shrub & Mixed Rangeland	0.00	Native	No
Forest	0.00	Native	No
Wetlands	9.38	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	0.00	Native	No
TOTAL:	4471.01		
TOTAL NATIVE:	313.33		
TOTAL NON-NATIVE:	4157.68		

Acreage shared with: KDWCD, KRCD, and Tulare Lake Basin Water Storage District (TLBWSD)

Kaweah Delta Water Conservation District

KDWCD was formed in 1927, under the provisions of California state law known as the Water Conservation District Act of 1927, for the purpose of conserving and storing waters of the Kaweah River and for conserving and protecting the underground waters of the Kaweah Delta. Later the Water Conservation District Act, as well as the purpose of KDWCD, was expanded to include power generation and distribution.

KDWCD is located in the south central portion of the San Joaquin Valley and lies in both Tulare and Kings Counties. It fully encompasses the growing cities of Visalia, Farmersville and Tulare. The population of the KDWCD is currently estimated to be in excess of 150,000 people. The total area of the District is about 337,000 acres with approximately 255,000 acres located in western portion of Tulare County and the balance, or about 82,000 acres, in the northeastern portion of Kings County. KDWCD is comprised of four districts that are entirely or partially within KDWCD boundary and are listed below:
Lakeside IrrigationWaterDistrict (LIWD) is discussed elsewhere in this appendix of the EA.
KCWD is discussed elsewhere in this appendix of the EA.
CoID is discussed elsewhere in this appendix of the EA.
St. Johns WaterDistrict (St JWD)
Encompasses in part or in total of the Kaweah River water rights of Jennings Ditch Company, Modoc Ditch Company, Goshen Ditch Company, and St. Johns Ditch Company.
Tulare Irrigation District is also a CVP contractor and has already undergone environmental review.

KDWCD lands are primarily agricultural, although the cities of Visalia and Tulare constitute significant areas of urbanization. Farmersville is the other incorporated area. Smaller unincorporated rural communities include Goshen, Ivanhoe, Waukena, and Guernsey.

A high degree of agricultural development exists in KDWCD, with approximately 266,000 acres presently devoted to the production of a variety of irrigated crops, 3,200 acres idle or fallow (including roads and canals), 13,000 acres in farmsteads, 23,300 acres undeveloped and approximately 31,500 acres of urbanized land. The principal crops are cotton, miscellaneous field crops, deciduous fruit and nut trees and alfalfa.

KDWCD encompasses the alluvial fan of the Kaweah River, extending about 40 miles in a southwesterly direction from the foothills of the Sierra Nevada Mountains on the east to the center of the San Joaquin Valley in the vicinity of the Tulare Lake bed on the west. KDWCD is

generally bounded on the north and west by the service area of the Kings River and on the south by the service area of the Tule River.

Numerous public and private entities within KDWCD 's boundaries divert water from the Kaweah River and its distributaries. Nearly all of the lands served with Kaweah River water also use groundwater wells to supply irrigation water, primarily due to the erratic, relatively undependable, nature of flow on the Kaweah River. All municipal and industrial water uses within KDWCD are supplied from groundwater.

Terminus Dam and Lake Kaweah, located on the Kaweah River about 3.5 miles to the east of the District, was completed in 1961 by the Corps. This project was constructed for flood control purposes on the Kaweah River and to provide river control and water conservation for irrigation purposes. KDWCD has a contract with the United States for repayment for the project costs allocated to water conservation. The reservoir currently holds about 143,000 af, with construction underway to expand capacity to 183,300 af.

KDWCD and its sub-entities have historically received substantial quantities of water surplus to the needs of CVP Contractors. Over the past 50 years, an excess of 5 million af of CVP water has been imported into KDWCD.

KDWCD can take delivery of CVP water from the FKC, which passes through the eastern portion of the District. The waste way on the FKC at the St. Johns River crossing (FKC Milepost 69.48) and the waste way at the Kaweah River crossing (FKC Milepost 71.29) deliver CVP water into the Kaweah River distributaries' system. Additionally, the turnout for the Tulare Irrigation (FKC Milepost 68.14) serves as a significant point of diversion for CVP water used within the District. All diversion points are in Tulare County.

KDWCD and the Kaweah River groundwater basin have experienced long-term groundwater overdraft estimated in 1972 to be 89,000 af per year. KDWCD is currently undergoing new studies of groundwater data to determine the extent and volume of groundwater overdraft within its boundaries. There are currently 40 recharge basins within KDWCD covering approximately 5,000 acres. While KDWCD owns and operates many of the groundwater recharge basins, it does not provide water-banking services for others.

Conversion of land from agricultural uses to urban/commercial uses has occurred, is occurring and is expected to continue to occur in these communities consistent with the general plans and zoning for these communities as may be amended. KDWCD has no intention of transferring any water for M&I use as a result of this Proposed Action. Proposals for transferring CVP water for M&I use would require separate NEPA review. While KDWCD owns and operates numerous groundwater recharge basins within its boundaries, it does not provide water banking for others.

The Service lists 22 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within KDWCD. Out of the 22 species likely to occur in KDWCD seven species have been sighted in the KDWCD action area according to the CNDDB. These species are *P. peirsonii, L. packardi, V. m. mutica, D. c. dimorphus, B. lynchi, A. californiense* and *G. silus*. *G. silus, A. californiense, T. greenei, C. hooveri, O. inaequalis, D. n. nitratoides, B. lynchi, V. m. mutica* and *L. packardi* all have CNDDB records within two miles of the service area.

KDWCD has no areas that are being actively managed as a preserve or refuge. KDWCD has no federally designated or proposed critical habitat.

Table 9: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Kaweah Delta Water Conservation District.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	None
Chamaesyce hooveri - Hoover's spurge	FT	**32044**, **2447**, **32048**
Orcuttia inaequalis - San Joaquin Valley Orcutt grass	FT	**35397**
Pseudobahia peirsonii - San Joaquin adobe sunburst	FT	12603, **32159**
Tuctoria greenei - Greene's tuctoria (=Orcutt grass)	FE	None
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides exilis - Fresno kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	**14607**
Vulpes macrotis mutica - San Joaquin kit fox	FE	55307, **46031**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	17096, 17102, 18594, 41569, 41571, 43430, **17097**, **17094**, **17093**, **17486**, **646**, **645**, **45196**
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	18290
Lepidurus packardi - Vernal pool tadpole shrimp	FE	35402, 41568, 41572, **45197**, **47873**
Amphibians		
Ambystoma californiense - California tiger salamander	FT	44980, **1334**, **22622**, **17489**, **7033**, **7030**
Rana aurora draytonii - California red-legged frog	FT	None
Rana muscosa – Mountain yellow-legged frog	FC	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	27743, **34953**
Thamnophis gigas - Giant garter snake	FT	None

	Status	CNDDB Sighting Index Number
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None
Gymnogyps californianus - California condor	FE	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None
Oncorhynchus kisutch - Central California Coast Coho salmon	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 10 Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Kaweah Delta Water Conservation District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	335.47	Non-Native	Yes
Residential/Commercial	852.75	Non-Native	Yes
Mixed Urban	1652.45	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	19640.76	Non-Native	Yes
Orchard & Vineyard	5792.30	Non-Native	Yes
Confined Feeding Operations	885.27	Non-Native	Yes
Idle Land	66.43	Non-Native	Yes
Water	241.01	Native	Yes
Grassland & Unknown Rangeland	1391.95	Native	Yes
Shrub & Mixed Rangeland	20.46	Native	Yes
Forest	0.00	Native	No
Wetlands	204.08	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	357.09	Native	Yes

TOTAL:	31440.02		
TOTAL NATIVE:	2214.59		
TOTAL NON-NATIVE:	29225.43		

Acreage shared with: CoID, DCTRA, KCWD, KRCD, LIWD

Kern County Water Agency

KCWA encompasses all of Kern County in the Southern San Joaquin Valley. KCWA currently has approximately 861,000 irrigated acres. This is in contrast to the districts peak irrigated acres, 973,000 acres in 1984 and its lowest recent level of irrigated acres, 729,400 acres in 1991 due to a severe drought. There are about 110,000 to 120,000 acres per year that are idled for various reasons. In an extreme case, if all of this land was cropped in a single year, irrigated acreage could return to its peak without the conversion of any native lands. In 1991 there were about 266,200 acres of permanent crops and in 1998 permanent crops amounted to about 316,500 acres. The trend of dwindling permanent is expected to continue.

KCWA was created by a special act of the State Legislature in 1961. It holds the master contract with the State of California for delivery of a maximum yearly entitlement of 1,000,949 af of SWP water supplies to 21 subcontracting water agencies ("Member Units") within Kern County listed below:

Table 11

Agency	Surface Water Rights/ Contract Rights	Irrigated Acreage	Percent in Permanent Plantings
*Belridge Water Storage District	SWP	--	--
*Berrenda Mesa WD	SWP	--	--
Buena Vista WSD	SWP, KR	38,411	1%
Cawelo WD	SWP, KR, MS, Oilfield waste	34,300	85%
Henry Miller WD	SWP, KR	18,100	0%
Kern County Water Agency Improvement	SWP, KR	4,900	0%

Agency	Surface Water Rights/ Contract Rights	Irrigated Acreage	Percent in Permanent Plantings
District No. 4			
Kern Delta WD	SWP, KR, MWD	93,100	7%
Lost Hills WD	SWP	57,600	29%
Rosedale-Rio Bravo WSD	SWP, KR	33,400	17%
Semitropic WSD	SWP, MS MWD	129,100	23%
*Tehachapi-Cummings CWD	SWP, local streams	--	--
*Tejon-Castac WD	SWP, local streams	--	--
*West Kern WD	SWP	--	--
Wheeler Ridge-Maricopa WSD	SWP, MS	93,600	37%
Arvin-Edison WSD (LTRC)	CVP, KR, MS	99,000	48%
Southern San Joaquin MUD (LTRC)	CVP	50,500	56%
Shafter-Wasco ID (LTRC)	CVP, MS	30,900	48%
Delano-Earlimart ID (LTRC)	CVP, MS	51,000	80%
Kern Tulare WD (LTRC)	CVP, KR	20,202	100%
Rag Gulch WD (LTRC)	CVP, KR	5138	100%

* No CVP water would be delivered to these districts as they are outside of the place of use for Friant water supplies based on Reclamation's water rights permits. Therefore, no data or further analysis is required.

CVP: Central Valley Project

SWP: State Water Project

KR: Kern River

MS: Minor Streams

The matrix below depicts the SWP supplies for KCWA member units.

Table 12
KCWA Member Unit SWP Entitlements

Member Unit	Entitlement	Allocation (60%)	Water Shortage
Belridge WSD	121,508	72,905	48,603
Berrenda Mesa WD	108,600	65,160	43,480
Buena Vista WSD	21,300	12,780	8,520
Cawelo WD	45,000	22,920	15,280
Henry Miller WD	35,500	21,300	14,200
Improvement District No. 4	82,946	49,768	33,178
KCWA	8,000	4,800	3,200
Kern Delta WD	25,500	15,300	10,200
Lost Hills WD	119,110	71,466	47,644
Semitropic WSD	155,000	93,000	62,000
Rosedale Rio-Bravo WSD	29,900	17,940	11,960
Tehachapi-Cummings CWD	19,300	11,580	7,720
Tejon-Castac WD	5,278	3,167	2,111
West Kern WD	25,000	15,000	10,000
Wheeler Ridge-Maricopa WSD	197,088	118,253	78,835
Total	998,730	559,238	339,492

Arvin-Edison WSD, Southern San Joaquin MUD, Shafter-Wasco ID, Delano-Earlimart ID, Kern Tulare WD and Rag Gulch WD are CVP contractors and are not the focus of this EA. Belridge WSD, Berrenda Mesa WD, Tehachapi-Cummings CWD, Tejon-Castac WD and West Kern WD are not within the Place of Use under Reclamation's water rights permits for this action, therefore are not included in Proposed Action. Henry Miller WD and West Kern WD have small portions within the CVP Place of Use. Approvals of exchanges with these two districts could occur only after considering the amounts and deliveries involved.

As stated earlier, each proposal for water transfers and exchanges would be reviewed individually for compliance with this BA, related biological assessments, applicable laws and policies including Reclamation’s water rights permits prior to approval. KCWA Improvement District #4 supplies are M&I water and the remaining districts are agricultural. The KCWA was established to make water available for any beneficial use or uses of land, such as providing flood control; draining and converting lands; acquire, appropriate, store, conserve and import water; prevent contamination of water; and develop and sell hydroelectric energy to aid in financing water projects**.**

The KCWA is seeking to be able to deliver CVP water to all areas within Kern County that are within the Places of Use as defined in Reclamation's water rights permits. The primary method of delivery of CVP water supplies to KCWA is via the Kern River at the FKC terminus. The water travels downstream in the Kern River channel, where it is diverted for use by water districts within the place of use as defined in Reclamation's water rights permits or for groundwater recharge projects located along the Kern River fan.

Because of the timing of surplus water availability, the primary use of the CVP surplus water has been for recharge within the Kern Fan groundwater storage projects, including the Berrenda Mesa Project, the Pioneer Project and the KWB.

KCWA is the largest agricultural water contractor on the SWP and the second largest overall with 1,000,949 af of annual entitlement. Kern County ranks in the top four California counties in agricultural production, behind Fresno, Tulare and Monterey Counties. For the year 2000, the last year for which statistics are available, Kern County agricultural production was valued at $2.2 billion. Grapes were the biggest crop with a value of $438 million, followed by citrus at $291 million and cotton at $226 million. Kern County leads the state in production of several crops including almonds, pistachios, carrots, watermelons, sheep and wool. Agriculture has been Kern County's number one industry for many years. Approximately one out of every four jobs in Kern County is related to agriculture.

Kern County has a total population of 662,000 people. Bakersfield, the largest incorporated city in the county has a population of 247,000 people.

Table 13. Some cities and their population sizes in Kern County.

City	Population
McFarland	9,600
Delano	38,800
Shafter	12,700
Wasco	21,200

BVWSD, CWD, KDWD, NKWSD, RRBWSD, and SWSD have requested a temporary water service contract as an independent contractor and are described elsewhere in this Section.

Henry Miller Water District

Henry Miller Water District is located approximately 17 miles northwest of the southern intersection of Interstate 5 and California Highway 99. The total district acreage as calculated by

Reclamation staff using ArcMap is roughly 26,000 acres. Annually the district provides about 35,500 af/y of irrigation water to approximately 19,500 acres of irrigated land.

The district is served by a large network of small private canals from the east. The California Aqueduct traverses the western portion of the district. Lake Webb and Lake Evans are located in the Buena Vista Recreation Area on the eastern side of the district. These two man made lakes are kept full for recreational purposes by the Buena Vista Water storage district as a mitigation measure for the permanent dewatering of the Buena Vista Lake after the construction of Lake Isabella in 1953.

Improvement District No. 4

In the late 1960's KCWA formed Improvement District No. 4 to import state project water to the urban Bakersfield area for municipal purposes. Today, more than 80,000 af/y of SWP water is reserved for importation into the area. Fifty-thousand af/y is set aside to replenish the local ground water basin, while 34,000 af is treated at the Henry C. Garnett Water Purification Plant. The treated water is delivered to four domestic water systems that serve parts of northern and eastern Metropolitan Bakersfield through the following entities:

Within the boundaries of the KCWA's Improvement District #4 are found *M. congdonii, O. treleasei, V. m. mutica* and *D. c. dimorphus*. These species were last reported in 1992, 1995, 1986 and 1991 respectively.

Wheeler Ridge-Maricopa Water Storage District

Wheeler Ridge-Maricopa Water Storage District (WR-MWSD) is a public agency whose jurisdiction encompasses about 147,000 acres of land in Kern County, California, at the extreme southern end of the San Joaquin Valley, twenty miles south of Bakersfield. A large portion of the WR-MWSD is within the designated Places of Use as defined in Reclamation's Water Rights Permits.

WR-MWSD provides irrigation water supplies to about 90,000 acres of farmland within its boundaries. A small percentage of the water is supplied on a temporary basis for industrial, groundwater recharge, and in-lieu of groundwater pumping purposes. As stated earlier, the banking of CVP water is not included in the Proposed Action and separate environmental documentation would be required for such proposals. WR-MWSD provides no water treatment or M&I service. Except for a few locations along Interstate 5, WR-MWSD is exclusively rural. There are no cities or towns within MR-MWSD boundaries. No significant new water distribution facilities have been constructed since 1986, and none are planned.

WR-MWSD is a member unit of the KCWA and has contracted with KCWA for a water supply from the SWP. Water from the SWP is delivered to the District through the California Aqueduct

which transects the District from West to East. Water from the SWP is the primary source of supplemental water utilized by the District. Other sources have included banked water from the various banking programs in Kern County in which WR-MWSD participates including the KWB, the Pioneer Project, and the Berrenda-Mesa Project. Direct delivery of surplus water from the CVP is accomplished by releases from the terminus of the FKC into the Kern River channel. Water released to the Kern River can either be conveyed directly to the Kern Water Bank Canal or diverted into the River Canal and delivered downstream to the Kern Water Bank Canal. From the Kern Water Bank Canal the water is conveyed to the Aqueduct and thence into WR-MWSD turnout and pipeline facilities located along the Aqueduct.

Most of the WR-MWSD water supply is distributed to 72,074 acres of farmlands within its Surface Water Service Area under the terms of recorded long-term agricultural water service contracts. Current facilities can also provide temporary water service to about 18,000 acres of farmlands. An additional 20,000 acres of farmlands and 10,000 acres of other developed lands rely primarily on groundwater supplies. Another 27,000 acres are undeveloped and used primarily for grazing. The primary use of the CVP water by WR-MWSD would be for delivery into the various banking programs for later recovery and use.

North of the River Municipal Water District

North of the River Municipal Water District receives roughly 10,000 af of treated water from the Henry C. Garnett Water Purification Plant on an annual basis. The district is both a retailer of water and a wholesaler of water. In times of drought the district is also able to pump groundwater. The district delivers approximately 7,000 af/y to its contractor, the Oildale Mutual Water Company, the remainder f the districts water is delivered directly to municipal consumers. The primary consumers for North of the River Municipal Water District are residential, with a small portion going to warehouse type businesses. None of the water is used for agriculture.

Oildale Mutual Water Company

Oildale Mutual Water Company was incorporated in 1919 and currently has 6,800 connections providing approximately 7,000 af/y of treated water to a population of approximately 25,000 in Bakersfield.

California Water Service Company

California Water Service Company is a privately held company serving water to consumers in various portions of California. A small service area for California Water Service Company is located near Bakersfield.

East Niles Community Services District

The East Niles Community Services District (ENCSD) has 6,700 connections and serves a population of approximately 27,000. ENCSD's boundaries overlap with Arvin Edison WSD. In

addition to serving municipal and industrial water ENCSD serves approximately 4,600 irrigated acres with 11,000 af/y of water. ENCSD's water resources are KCWA ID #4 treated water, groundwater and Arvin-Edison raw water. The main crop is oranges. ENCSD does not have groundwater storage or recharge.

KCWA Water Supply

SWP

KCWA is the second largest participant in the SWP, a water storage and delivery system of reservoirs, aqueducts, power plants and pumping plants. The project, which extends for more than 600 miles (two-thirds the length of California), was planned, built, and is operated by the DWR. About $4 billion have been spent on project construction.

The project's main purpose is to store water during wet periods and distribute it to areas of need in Northern California, the San Francisco Bay area, the San Joaquin Valley, and Southern California. The State has contracts to supply up to 4.2 million af annually of SWP water to 29 public agencies. Other project functions include flood control, power generation, recreation, and fish and wildlife enhancement.

The first deliveries of water from the project to Kern County began in 1968. KCWA has contracted to receive a maximum yearly entitlement of 1,000,949 af of water. Of that amount, 134,000 af is allocated to municipal and industrial use, and 866,949 af is used for agricultural use.

Water from the SWP reaches Kern County through the California Aqueduct which passes through the west side of Kern County before crossing the Tehachapi Mountains into Southern California. A portion of that water is brought to Bakersfield and other eastern portions of the San Joaquin Valley through a series of seven pumping stations in the 22-mile long CVC operated by the KCWA.

Central Valley Project

The FKC is an essential part of the Kern County agricultural water supply system. It delivers more than 400,000 af per year to Kern County CVP contractors Delano-Earlimart Irrigation District, Southern San Joaquin Municipal Water Utility District, Shafter-Wasco Irrigation District (SWID), Arvin-Edison Water Storage District, Kern-Tulare Water District, and Rag Gulch Water District.

Kern River

The Kern River supplies water for agriculture, municipal use, industrial use and hydroelectric power. Flows average 700,000 af yearly or about 22 percent of the water for Kern County users. The Kern River originates in two forks near Mt. Whitney in the southern Sierra Nevada

Mountains and flows south. A large dam has been constructed to form Lake Isabella. The Kern River is the largest local source of surface water in Kern County. Districts that have water rights include NKWSD, KDWD, City of Bakersfield, BVWSD, Henry Miller Water District, Olcese Water District, and La Hacienda Inc. Kern River water is also delivered to RRBWD, CWD, Kern-Tulare Water District, Rag Gulch Water District and KCWA's Improvement District No. 4.

Agricultural Use

Kern County is the fourth most productive agricultural county in the nation. A semiarid region, it must rely on adequate imported water supply. A vast groundwater basin supplies 43 percent of the water used for domestic and agricultural purposes. Other sources of supply include the Kern River (22 percent), the SWP (23 percent), and the FKC (11 percent). With years of flood and years of drought spaced among periods of normal supply, careful management practices have been developed and applied. Kern County farmers are among the most efficient water managers in the state. It is estimated that 75 percent of the water applied to local crops goes to satisfying actual crop requirements. Significant improvement in efficient irrigation has been made through the utilization of drip and low volume application methods, as well as careful management of row and border systems. Laser leveling helps achieve uniform distribution. Researchers have determined that irrigation practices in Kern County are among the most efficient in the nation.

With national and worldwide demands for food and fiber increasing, the water and agricultural industries of Kern County will continue to develop efficient technologies to meet future irrigation requirements.

Groundwater

Sediments that comprise Kern County's main groundwater basin are unconsolidated deposits of Tertiary and Quaternary age, including alluvium, lacustrine, deltaic and flood basin deposits of sand and gravel. Thin lenses of silt and clay are scattered throughout the basin at various depths, but are most pronounced in the southwestern and northwestern portions of the Tulare Lake Basin. This basin is located within the Tulare Lake hydrologic region and is bounded on the north by the Kern County line, on the east by the Sierra Nevada foothills, on the south by the Tehachapi and San Emigdio Mountains and on the west by the coast ranges. The Kern River is the principal watershed drainage. The main groundwater basin in the San Joaquin Valley portion of Kern County covers about 963,000 acres. KCWA estimates total storage capacity of the top 500 feet is about 50 million af. Total groundwater in storage within this space is estimated at 40 million af, with about 10 million af of dewatered storage space.

The main San Joaquin Valley basin has two primary water bearing zones; an unconfined zone generally above the Corcoran Clay and a confined zone generally below the Corcoran Clay. There are multiple confined zones in some parts of the valley. The southeastern corner of the

Valley contains the White Wolf basin, which is separated from the main Kern County basin by the White Wolf Fault. In the northeastern portion of the basin some groundwater production occurs in the Santa Margarita and Olcese formations. These deep, confined aquifers are on the edge of the Valley with limited yields and marginal to poor groundwater quality.

Natural recharge of the groundwater basin is estimated to be about 180,000 af annually. Annual groundwater pumping exceeds the natural recharge of the basin. The conjunctive use of surface and groundwater supplies has increased the operational yield of the groundwater basin to about 2 million af annually.

There are about 5,500 to 6,000 active groundwater wells in the Kern County groundwater basin. Basin yield varies across the valley. The lowest pump yields are in the northeastern portion of the valley, and the highest yields are typically in the Kern Fan area. Typical yields may vary from about 700 gallons per minute to over 3,000 gallons per minute (Management Plan, October 2001).

FACILITIES

The following is a description of the conveyance facilities within the KCWA service area. These include the California Aqueduct, CVC, FKC, the Kern Water Bank canal and Kern River. These facilities are briefly described below.

California Aqueduct

KCWA has an allocated Aqueduct capacity of 3,277 cfs. Along both sides of the Aqueduct within the Kern County portion of the DWR San Joaquin Field Division are a number on Member Unit turnouts used to convey water from the Aqueduct into each district delivery system. Following is a list of the Member Units and number of turnouts: SWSD - 2; BVWSD - 6; CWD - 1[1]; RRBWSD - 1[2]; Henry Miller WD- 2[3]; WR-MWSD - 17. The Aqueduct is used to convey water including the transfer and exchange water, to Kern Tulare and Rag Gulch WDs. Recovered groundwater that is conveyed to the Aqueduct, can be delivered to districts or exchanged with the DWR. Exchanges with the DWR can be simultaneous, or delayed exchanges. In a simultaneous exchange water delivered from the Aqueduct to an upstream district at the same time the recovered groundwater is transported to the Aqueduct. With a delayed exchange, water might be delivered by the DWR to the receiving district from storage before or after the recovered groundwater is received.

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[1] Cawelo WD takes delivery of SWP water via the CVC.

[2] Rosedale-Rio Bravo WSD takes delivery of their SWP water via the CVC.

[3] Henry Miller WD takes their SWP water via Buena Vista turnouts.

Cross Valley Canal

The CVC is also used to convey banked groundwater after it is recovered. Once in the CVC, recovered water can be delivered to CVC participants in exchange for water in the Aqueduct. During periods when water is not available for exchange, the CVC can be operated in reverse flow. When operated in reverse flow, water flows from the CVC directly into the Aqueduct. In 1991, water levels in the Aqueduct were low enough for the flow to be by gravity. When water levels in the Aqueduct are too high for gravity flow, the water must be pumped into the Aqueduct. In 1992, the DWR constructed a temporary pump station to lift 80 cfs from the CVC into the Aqueduct. A similar station may be reconstructed in the future if reverse flows into the Aqueduct are needed when levels in the Aqueduct are too high for gravity flow. In addition, raising the lining in the CVC reach adjacent to the Aqueduct would allow reverse flow without a pump station.

It should be noted that depending on groundwater pumping operations, water in the Buena Vista Aquatic Lake may contain high concentrations of arsenic. These high concentrations are caused when groundwater from nearby wells is pumped into the Buena Vista Aquatic lakes for agricultural use and to make up evaporation losses.

Kern River/Alejandro/Outlet Canals

Water from the FKC, the CVC, or from the Kern River can be conveyed in the Kern River channel or in the Kern River Canal to the Pioneer Banking project or other recharge areas. Conveyance of water in the Kern River Canal requires an agreement with the City of Bakersfield. Conveyance of water in the Alejandro Canal requires an agreement with the BVWSD.

The Kern River Canal can also be used to convey water from the Kern River to the Aqueduct directly via the Alejandro Canal, the Buena Vista Aquatic Lakes and Outlet Canal and a pumping plant, or indirectly via an exchange.

It should be noted that depending on groundwater pumping operations, water in the Buena Vista Aquatic Lake may contain high concentrations of arsenic. These high concentrations are caused when groundwater from nearby wells is pumped into the Buena Vista Aquatic lakes for agricultural use and to make up evaporation losses.

Friant-Kern Canal

The FKC is operated by the Friant Water Authority to convey water supplies from the San Joaquin River through the Friant Division of the CVP to several districts in Kern County, including to KCWA occasionally under temporary contract.

In addition to conveying CVP water, the canal is sometimes used to convey floodwaters from the Kings, Kaweah and Tule rivers which are pumped into the FKC in major flood years. If not pumped into the FKC these waters would flood the Tulare Lake bed. Such floodwaters in the FKC are released into the Kern River channel downstream of Bakersfield where the water can flow into the Aqueduct via the Kern River - Aqueduct Intertie or be diverted and recharged into the groundwater basin in Kern County. Alternatively, water from the FKC can be conveyed to the Aqueduct or recharge areas via the CVC operating in reverse mode.

Kern Water Bank Canal

The KWB Canal (Canal) is a bi-directional canal constructed by the Kern Water Bank Authority. The canal has a single pumping plant for delivering water for recharge. The forward flow capacity is 950 cfs. Reverse flow capacity is approximately 650 cfs. The Canal is used to convey SWP water and other waters from the Aqueduct to the local banking projects for groundwater recharge. The Canal is also used to convey pumped groundwater during a surface water short year, back to the Aqueduct, either directly or by exchange, to districts for a supplemental water supply.

Potential Sources of Exchange Water

The KCWA member units have access to the following potential sources of water that could be exchanged for CVP water supplies:

1. SWP water – Accessed from turnouts along the Aqueduct and subsequently from public and privately owned canals and pipelines that transport the water for use within Kern County.

2. Kern River water – Accessed from existing turnouts and diversion points along the Kern River and related public and privately owned canals and pipelines that transport the water for use within Kern County, or through additional exchange to CVP surface water supplies.

3. Poso Creek, Caliente Creek or other minor streams within Kern County – Existing points of diversion are within CWD, SWSD, NKWSD, KDWD, Henry Miller WD, Arvin-Edison WSD and portions of WR-MWSD.

4. Kaweah, Tule, St. Johns and Kings River water – Historically has been available to Kern County NCVPC via diversion of flows at established points of diversion into the FKC and into the Kern River.
5. Groundwater – Exchanges involving groundwater could occur virtually anywhere within the Kern NCVPC area, including groundwater recharge and recovery facilities, which have access directly or through additional exchange to CVP surface water supplies. Groundwater banking is not included in this analysis and separate NEPA review would be needed.

Potential Scope of Exchange Water Deliveries

The distribution systems in Kern County are heavily interconnected. The CVC interconnects the SWP, Kern River and FKC systems. The SWP is further interconnected with the Friant-Kern system via Arvin-Edison WSD's turn-in/out to the Aqueduct. Also, most of the Kern NCVPCs have distribution systems which are interconnected with the distribution systems of neighboring districts. As an example, SWSD and SWID have a pipeline interconnection which can move water directly from the Aqueduct through SWSD's distribution system and into Shafter-Wasco, a Friant long-term contracting district. In reverse, water from the FKC can be moved through Shafter-Wasco directly to SWSD, a non long-term CVP district and a SWP contractor.

Natural streams also provide conveyance capability to facilitate exchanges. As an example, Poso Creek, itself a source of potential exchange supplies, traverses a couple of districts (and the Kern National Wildlife Refuge) and has served as a conveyance vehicle of CVP supplies in the past. All of these interconnections can be used to directly or indirectly deliver exchange water. This illustrates the potential for exchanges between various entities within Kern county and those elsewhere within the CVP or the SWP.

As an important aside, several facilities exist which can be used to deliver water to the Kern National Wildlife Refuge (KNWR). While CVP supplies or purchased non-CVP supplies available to the KNWR are not typically available to either CVP Contractors or NCVPC, exchanges have historically been done with the KNWR to provide water to the refuge on their preferred demand pattern. Additional exchanges have been offered and considered with the KNWR where refuge supplies could be delivered and stored in the groundwater of Kern districts and subsequently returned from groundwater or other surface supplies back to the KNWR on its preferred demand schedule. There may be monetary or water resource gains associated with facilitating such exchanges. CVP water from the Friant Division can not be used for wildlife habitat since the water rights permits do not include fish and wildlife or their habitat as a purpose of use. This BA does not cover transfers or exchanges to refuges and separate NEPA analysis would be required.

Potential Exchange Functions

Exchanges involving CVP supplies have occurred and may occur for the following reasons.

1. Exchanges to access surface storage – There are times when surface reservoirs (i.e. Lake Isabella) accessible to Kern NCVPC interests are at varying levels of fullness. Water availability on the Kern River or minor streams may not match up with the ability of the surface storage on that system to regulate the supply in order to match demand patterns. Exchanges can be used to affect the storage of CVP water in a non-CVP reservoir and vice versa. There may also be monetary or water resource gains associated with facilitating such exchanges.

2. Exchanges to access groundwater storage – "In lieu" groundwater recharge can be facilitated with exchanges that deliver CVP surface water to lands that would otherwise be pumping groundwater. Similarly, CVP deliveries may be made into river reaches to offset river losses effecting "in lieu" groundwater recharge elsewhere by virtue of making the displaced surface water (otherwise charged as river loss) available to these areas.

Another common method of exchange to access groundwater storage involves use of the large-scale groundwater recharge and recovery facilities located on the Kern River fan and in SWSD (also in Arvin Edison Water Storage District, a Friant long-term contractor). Friant-Kern or CVP Delta water may be available to a CVP Contractors, but not sufficiently regulated to match demand patterns. The water may be recharged on the Kern Fan recharge and recovery facilities or within SWSD when it is available (typically in the winter months) and a like amount of groundwater recovered and delivered to the long-term contractor during times that better match demand patterns. There may also be monetary or water resource gains associated with facilitating such exchanges. KCWA collects fees for storing water for contractors until such time it is needed in the growing season.

3. Exchanges to allow delivery of non-CVP water to CVP districts – Lands capable of being served with both CVP and non-CVP surface water supplies can facilitate an exchange of water so as to effect the movement of the non-CVP supply through CVP facilities without actually having to physically transport the non-CVP supply through the CVP facilities.

4. Exchanges to allow delivery of CVP water to non long-term CVP districts – Similar to 3 above, lands capable of being served with both CVP and non-CVP supplies can facilitate an exchange of water so as to effect the movement of CVP supplies through non-CVP facilities without actually having to physically transport the CVP supplies through the non-CVP facilities.

The Service lists 21 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within KCWA. Out of the 20 species likely to occur in KCWA, 10 species have been sighted in the KCWA action area according to the CNDDB.

Berrenda Mesa Water District, of KCWA contains proposed critical habitat for *Rana aurora draytonii*. However Berrenda Mesa is not within the CVP Place of Use and is not included in this analysis and approval process.

Sorex ornatus relictus has been historically present within the boundaries of KCWA. The last sighting, however, was in 1991 near Lake Evans. *Thamnophis gigas* has also been historically present within the boundaries of KCWA.

Within the boundaries of the KCWA ID #4 are *Monolopia congdonii*, *Opuntia treleasei*, *Vulpes macrotis mutica* and *Desmocerus californicus dimorphus*. These species were last reported in 1992, 1995, 1986 and 1991 respectively.

O. treleasei, G. silus, S. o. relictus, C. californicus, T. gigas, E. kernensis, V. m. mutica, M. congdonii, D. n. nitratoides, D. ingens, western snowy plover and *D. c. dimorphus* all have CNDDB records within two miles of the service area.

KCWA has four areas that are being actively managed as preserves or refuges. The Center for Natural Lands Management (CNLM) has two preserves, one is managed by FWS and two are managed by the California Department of Fish and Game (CDFG). The first property owned by the CNLM encompasses approximately 2869 acres, all of which is within the bounds of the KCWA. The second CNLM property is approximately 160 acres and is totally with in the KCWA. The FWS refuge is approximately 10,400 acres most of which lies within the KCWA boundary. Only a small portion of the first CDFG property's approximately 475 acres is in KCWA. The second CDFG property is approximately 1420 acres, most of which is in the KCWA.

Within the boundaries of the KCWA's ID #4 are found San Joaquin woolly threads (*Monolopia congdonii*), Bakersfield cactus (*Opuntia basilaris var. treleasei*), San Joaquin kit fox (*Vulpes macrotis mutica*) and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). These species were last reported in 1992, 1995, 1986, and 1991 respectively.

Table 14: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Kern County Water Agency.

	Status	**CNDDB Sighting Index Number**
Plants		
Caulanthus californicus - California jewelflower	FE	20305, 20295, **20297**, **23135**, **23133**
Eremalche kernensis -	FE	2875, 2876, 2446, **12749**, **2881**, **2880**,

	Status	CNDDB Sighting Index Number
Kern mallow		**2879**, **2734**
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	2745, 2747, 2749, 2766, 2767, 16484, 16487, 16489, 16492, 16494, 16496, 22383, 33750, **16490**, **16491**, **2750**, **2748**, **2668**
Opuntia treleasei - Bakersfield cactus	FE	2931, 2932, 2978, 2984, 2987, 2992, 2994, 6270, 6278, 7096, 19988, 22401, 22276, 34009, 34010, **22297**, **22778**, **22265**, **21443**, **21436**, **2117**, **21168**, **21171**, **12613**, **6277**, **2989**, **2988**, **2979**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	24037, 24039, **24056**, **24016**
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	3169, 9781, 12423, 13172, 13173, 13336, 14572, 14573, 14574, 14576, 14578, 14579, 14580, 14581, 14582, 14586, 14587, 14589, 14590, 14592, 14594, 14595, 14596, 14597, 23907, 23905, 34113, **23906**, **23904**, **14603**, **14598**, **14585**, **14583**, **14584**, **14578**, **14575**, **14577**, **14588**
Sorex ornatus relictus - Buena Vista Lake shrew	FE	24375, 43156, 43157, 43158, 43162, **24375**, **43159**, **43160**, **43162**
Vulpes macrotis mutica - San Joaquin kit fox	FE	49093, 49105, 49107, 49117, 53951, 55604, 55294, 55295, 55495, 55497, 55819, 46024, 48944, **8096**, **8068**, **48947**, **49090**, **49091**, **49092**, **49107**, **55298**, **55387**, **55400**, **55438**, **55462**, **55463, 55464**, **55563**, **55602**, **55633**, **55636**, **55668**, **55832**, **55838**, **55839**, **55840**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	**15172**
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None

	Status	CNDDB Sighting Index Number
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	14773, 27684, 27680, 27688, 27689, 27691, 27699, 27706, 27728, 27731, 27732, 27733, 27735, 27738, 27739, 27773, 27776, 27777, 27814, 27816, 27820, 27822, 27824, 27826, 27827, 27829, 27830, 27831, 27832, 27833, 27834, 27835, 27836, 27841, 27842, 27869, 34112, 43705, 51292, 52957, 55513, **27821**, **27876**, **27871**, **27867**, **27864**, **27862**, **27863**, **27846**, **27838**, **27839**, **27825**, **27823**, **27817**, **27815**, **27785**, **27778**, **27779**, **27774**, **27741**, **27736**, **27737**, **27744**, **27694**, **27690**, **14770**, **13114**, **13112**, **52954**
Thamnophis gigas - Giant garter snake	FT	14845, **1550**, **1572**, **1618**, **24056**, **24037**, **24039**, **24016**
Birds		
Charadrius alexandrinus nivosus - Western snowy plover	FT	25727, **25722**
Coccyzus americanus - Western yellow-billed cuckoo	FC	None
Empidonax traillii extimus - Southwestern willow flycatcher	FE	None
Falco peregrinus anatum - American peregrine falcon	FD	None
Gymnogyps californianus - California condor	FE	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 15 Land Use Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Kern County Water Agency			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	1129.26	Non-Native	Yes
Residential/Commercial	1036.06	Non-Native	Yes
Mixed Urban	3659.76	Non-Native	Yes
Barren	30.29	Native	Yes
Crop & Pasture	33534.87	Non-Native	Yes
Orchard & Vineyard	8568.56	Non-Native	Yes
Confined Feeding Operations	264.46	Non-Native	Yes
Idle Land	1217.30	Non-Native	Yes
Water	669.88	Native	Yes
Grassland & Unknown Rangeland	4338.74	Native	Yes
Shrub & Mixed Rangeland	5474.01	Native	Yes
Forest	51.68	Native	Yes
Wetlands	2547.55	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	425.52	Native	Yes
TOTAL:	62947.93		
TOTAL NATIVE:	13537.66		
TOTAL NON-NATIVE:	49410.27		

Acreage shared with: BVWSD, CWD, KDWD, KWB, NKWSD, RRBWSD, and SWSD

Kern Delta Water District

KDWD is located in the southern portion of the CVP Service Area, directly south of City of Bakersfield, and west of Arvin-Edison. Two major highways, Interstate 5 on the west and State Highway 99 on the east, join at the district's southern boundary. To the west, KDWD's border roughly follows the Buena Vista Canal, while its eastern border is located west of the City of Arvin (population approximately 13,000 in 2000). KDWD encompasses the historic Kern Lakebed.

KDWD comprises of 129,000 acres which are primarily agricultural but also encompassing about 5,000 acres of residential and commercial land uses. Most urban areas are found in the north portion of KDWD, where the City of Bakersfield is slowly growing to the south. In addition, there is sparse urban development along the two major east-to-west roads (Panama Land and Taft Highway). Land use south of the City of Bakersfield is mainly agricultural (87percent), but there are about 8,000 acres dedicated to petroleum extraction. Planned suburban and commercial development is generally focused on the areas immediately south of Bakersfield.

Major infrastructure in KDWD consists of two oil fields: the Ten-Section Oil Field on the west, south of Panama Lane, and a much smaller oil field just south of Panama Lane near the town Lamont at the eastern edge of KDWD. There are a number of oil and gas pipelines running through the district and several major power line easements. The Arvin-Edison Canal runs through portions of the northern end of KDWD, connecting to five existing irrigation canals that serve KDWD growers. From west to east, these existing earth-lined canals are the Buena Vista, Stine, Farmers, Kern Island Main, Kern Island Central, and Eastside Canals. All but the Kern Island Main and Eastside Canals generally follow the alignment of historic streams. KDWD is completely within the Friant Places of Use. Lands north of Bear Mountain Blvd, within KDWD, are covered in the Metropolitan Bakersfield Habitat Conservation Plan (HCP) which has been completed. Kern County is currently developing a HCP which encompasses the remaining lands in KDWD.

KDWD has historically received CVP surplus water either by direct contract with Reclamation, through participation with the KCWA, or by exchange with Arvin-Edison WSD. Regardless of the contract method, KDWD receives CVP water through a direct connection with Arvin-Edison WSD. KDWD has the capability of taking CVP water from the Arvin-Edison Intake Canal running mostly west to east across the northern portion of KDWD and crossing several of KDWD's canals. KDWD has the capability of taking water from the Arvin-Edison Intake Canal into the Stine and Farmers service areas through the Stine Canal and the Kern Island service area through the Kern Island Canal. The Buena Vista service area can also receive CVP water by moving water from the Arvin-Edison Intake Canal to the Kern River Canal then to the Buena Vista Canal. KDWD does not require special exchanges to take delivery of CVP water.

The Service lists 18 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within KDWD. Out of the 20 species likely to occur in KDWD, four species have been sighted in the KDWD action area according to the CNDDB. These species are *O. treleasei, D. n. nitratoides, S. o. relictus* and *G. silus.* Most of these species only have one or two sightings except for *D. n. nitratoides,* which has three. In addition, while there are no listed sightings of *V. m. mutica*, the CNDDB considers the northern and central parts of KDWD to be potential habitat for *V. m. mutica*.

D. n. nitratoides has CNDDB records within two miles of the service area. KDWD has no areas that are being actively managed as a preserve or refuge. KDWD has no federally designated or proposed critical habitat.

Table 16: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Kern Delta Water District.

	Status	**CNDDB Sighting Index Number**
Plants		
Caulanthus californicus - California jewelflower	FE	None
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	None
Opuntia treleasei - Bakersfield cactus	FE	2977
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides – Tipton kangaroo rat	FE	14579, 14580, 14581, **14583**, **14578**, **14577**
Sorex ornatus relictus - Buena Vista Lake shrew	FE	24375, 43156
Vulpes macrotis mutica - San Joaquin kit fox	FE	None
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None

	Status	CNDDB Sighting Index Number
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	27824
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Empidonax traillii extimus - Southwestern willow flycatcher	FE	None
Falco peregrinus anatum - American peregrine falcon	FD	None
Gymnogyps californianus - California condor	FE	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 17: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Kern Delta Water District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	214.05	Non-Native	Yes
Residential/Commercial	205.30	Non-Native	Yes
Mixed Urban	402.91	Non-Native	Yes
Barren	0.00	Native	No

Crop & Pasture	9498.68	Non-Native	Yes
Orchard & Vineyard	640.96	Non-Native	Yes
Confined Feeding Operations	195.52	Non-Native	Yes
Idle Land	155.64	Non-Native	Yes
Water	50.29	Native	Yes
Grassland & Unknown Rangeland	463.82	Native	Yes
Shrub & Mixed Rangeland	156.03	Native	Yes
Forest	1.84	Native	Yes
Wetlands	1.44	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	0.00	Native	No
TOTAL:	11986.47		
TOTAL NATIVE:	673.42		
TOTAL NON-NATIVE:	11313.05		

Acreage shared with: BVWSD, KCWA, KWB

Kern Water Bank

KWB is located in the southwestern San Joaquin Valley, occupies approximately 30 square miles (20,000 acres) of land in Kern County.

The primary purpose of the KWB is to recharge, store and recover water (water banking) in order to improve the water supply for its participants during periods of water shortages. It also conducts other activities that include farming and habitat management.

The KWB is a Joint Powers Authority comprised of six subcontracting water agencies, as listed below**.** All members of the KWB have a contract, either directly or indirectly, for water from the SWP. KWB provides the mechanism to help mitigate the various reliability problems inherent in the SWP. The following are KWB Member Units:

Dudley Ridge Water District	Tejon-Castac Water District
KCWA	Westside Mutual Water Company
SWSD	WR-MWSD

The KWB operates by recharging surplus water for direct groundwater recharge within recharge basins when it is plentiful. KWB does not ownership of any of the water recharged onto the property. All water is owned by the participants purchasing and recharging the water to maintain balance of water supplies. As such, KWB does not use its banked water for growing crops, although its member districts do use the water for farming within their districts.

The majority of KWB lands, 17,000 of the 20,000 acres that comprise the agency, were farmed intensively prior to 1991. Currently, the water conservation activities of the water bank are allowing re-establishment of intermittent wetland and upland habitat. The CVP water, if approved, would be delivered for recharge of the aquifer.

KWB receives FKC water via the CVC or the Kern River. Both the CVC and Kern River will then convey the water to KWB facilities for groundwater storage until needed by KWB participants. When the stored water is requested by the KWB participants, the water can be pumped from the ground and delivered through the KWB canal, CVC and the Aqueduct directly or by exchange to the participant's service areas so long as they are within the Place of Use boundaries as defined in Reclamation's water rights permits.

The Service lists 20 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within the KWB. Out of the 21 species likely to occur in the KWB eight have been sighted in the KWB action area, according to the CNDDB. These species are *C. californicus, E. kernensis, M. congdonii, O. treleasei, D. n. nitratoides, S. o. relictus, G. silus* and western snowy plover. While there are no listed sightings of *V. m. mutica*, the CNDDB considers a large amount of the district to be potential habitat for the species.

KWB has four areas that are being actively managed as preserves and/or refuge. The CNLM owns one preserve, one area is managed by the Service as a wildlife refuge and two are managed by the CDFG. The property owned by the CNLM encompasses approximately 2869 acres, all of which is within the bounds the KWB. The Service refuge is approximately 10,400 acres of which most lies within the KWB boundary. Only a small portion of the first 475-acre CDFG property's is in KWB. The second CDFG property is approximately 1420 acres, most of which is in the KWB.

The KWB has no Federally designated or proposed critical habitat.

O. treleasei, G. silus, S. o. relictus, C. californicus, T. gigas, D. ingens, E. kernensis, V. m. mutica, M. congdonii, D. n. nitratoides and *D. c. dimorphus* have CNDDB sightings within two miles of the service area.

Table 18: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Kern Water Bank.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	20295, 20297, **20305**, **13133**, **20303**, **20294**, **20291**

	Status	CNDDB Sighting Index Number
Eremalche kernensis - Kern mallow	FE	2446, **20686**, **2875**, **2876**
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	2745, 16485, 16489, 22383, 16496, 16484, 2766, 2767, 2668, **18738**, **16501**, **16494**, **16490**, **16491**, **16492**, **16487**, **14291**, **2854**, **2853**, **2749**, **2750**, **2748**, **2747**, **2678**, **2442**, **2440**, **2439**, **2390**
Opuntia treleasei - Bakersfield cactus	FE	2984, 6270, 22401, 22276, 19988, 7096, 6278, 2994, 2992, 2987, 2978, 2932, 2931, 34009, 34010, **22297**, **22278**, **22265**, **21443**, **21436**, **21168**, **12613**, **6277**, **2989**, **2988**, **2979**, **2977**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	**24037**, **24029**
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	9781, 12423, 13172, 13173, 13336, 14573, 14576, 14578, 14588, 14582, 14589, 14590, 14592, 14594, 14595, 14596, 14597, 34113, **23908**, **23907**, **23904**, **14603**, **14598**, **14587**, **14586**, **14584**, **14580**, **14577**, **14575**, **3169**, **14574**
Sorex ornatus relictus - Buena Vista Lake shrew	FE	43162, **24375**, **43156**, **43158**, **43160**
Vulpes macrotis mutica - San Joaquin kit fox	FE	**8096**, **46024**, **48895**, **48914**, **48944**, **49090**, **49091**, **49092**, **49093**, **49107**, **53951**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	**15172**
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None

	Status	CNDDB Sighting Index Number
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	14773, 27688, 27689, 27699, 27728, 27706, 27691, 27731, 27732, 27733, 27738, 27739, 27766, 27773, 27816, 27814, 27805, 27776, 27820, 27822, 27826, 27827, 27831, 27824, 27869, 27834, 27835, 27830, 34112, **27871**, **27867**, **27864**, **27863**, **27846**, **27841**, **27842**, **27833**, **27829**, **27825**, **27823**, **27817**, **27815**, **27809**, **27811**, **27807**, **27803**, **27804**, **27785**, **27777**, **27741**, **27744**, **27736**, **27687**, **27684**, **14770**, **43705**, **51292**, **52946**, **52954**, **52957**, **55513**, **27691**, **27735**
Thamnophis gigas - Giant garter snake	FT	**1618**, **1572**, **1550**
Birds		
Charadrius alexandrinus nivosus - Western snowy plover	FT	25727
Empidonax traillii extimus - Southwestern willow flycatcher	FE	None
Falco peregrinus anatum - American peregrine falcon	FD	None
Gymnogyps californianus - California condor	FE	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 19: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Kern Water Bank			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	757.65	Non-Native	Yes
Residential/Commercial	546.60	Non-Native	Yes
Mixed Urban	2923.65	Non-Native	Yes
Barren	30.29	Native	No
Crop & Pasture	13589.32	Non-Native	Yes
Orchard & Vineyard	5476.49	Non-Native	Yes
Confined Feeding Operations	7.88	Non-Native	Yes
Idle Land	742.21	Non-Native	Yes
Water	402.91	Native	Yes
Grassland & Unknown Rangeland	3120.16	Native	Yes
Shrub & Mixed Rangeland	4905.04	Native	Yes
Forest	49.84	Native	Yes
Wetlands	2376.61	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	418.61	Native	Yes
TOTAL:	35347.26		
TOTAL NATIVE:	11303.45		
TOTAL NON-NATIVE:	24043.81		

Acreage shared with: BVWSD, CWD, KCWA, KDWD, KRCD, NKWSD, RRBWSD, and SWSD

Kings County Water District

KCWD was formed in 1954 under the County Water District Act to provide a legal entity for water management in the northeast portion of Kings County. The basic missions of KCWD are:

1) Protection, conservation, and stabilization of groundwater.

2) Negotiating and contracting for supplemental water.

3) Maintaining facilities for surface water distribution for irrigation and groundwater recharge.

4) Preserving the existing surface water rights held by mutual water companies through a program of water stock acquisition and retention.

KCWD encompasses the northeastern portion of Kings County, from the Kings River on the north to approximately six miles south of Hanford. To the east, KCWD extends to the County's east boundary, and to the west it extends approximately 5 miles west of Hanford to the eastern edge of the City of Lemoore.

KCWD is located in the east central part of the Kings River service area, and is entirely within Kings County. The City of Hanford, with a population of 49,000, lies near the center of the District. The total area of KCWD is 143,000 acres, of which 51,150 acres are also with the boundaries of Division 5 of the KRCD; 82,610 acres are also within the boundaries of KDWCD; and 9,240 acres are within the area where the two districts overlap. KCWD population excluding City of Hanford is 25,000. Although, KCWD boundaries encompass the Cities of Hanford and a portion of Lemoore, KCWD does not supply any M&I water.

KCWD includes portions of the service areas of three major mutual ditch companies. Peoples Ditch Company and Last Chance Water Ditch Company both possess water rights on the Kings River, and Lakeside Ditch Company holds water rights on the Kaweah River. KCWD boundary completely encompasses the area of the LIWD, a California water district formed to administer the water rights and distribution system of the Lakeside Ditch Company stockholders, and acquire additional surface water supplies. KCWD also operates and maintains the Riverside Ditch, a conveyance system used to distribute KCWD and People's Ditch Company water.

KCWD has recharge basins that are located near the conveyance systems of the ditch companies in which they own stock. KCWD also uses Old Slough and river channels, and has a continuing program of purchasing and leasing property for groundwater recharge. KCWD currently has over 1,100 acres of artificial recharge area and also uses some 230 miles of unlined canals owned by the ditch companies that contributes to incidental recharge. Maintenance of these recharge basins is performed by KCWD and consists mainly of weed control and efforts to maintain permeability.

The quantity of water used in the recharge program has only recently been totally measured. Critically dry years such as 1976-77 resulted in zero recharge while wet years such as 1982-83 can yield 125,000 afy recharged in KCWD. The results of the program are monitored by semiannual measurements of the groundwater level in 230 wells through a cooperative effort. These measurements depict an erratic decline in groundwater levels. Since KCWD formation in 1954, the average depth to groundwater has gone from 37 feet to 74 feet measured in the autumn of 1997.

The average yearly decline in groundwater levels is .86 feet per year since 1954. This equates to an annual average overdraft of 12,300 afy. To counteract this overdraft, KCWD has practiced a conjunctive use of both surface and groundwater, plus the planned artificial recharge of the groundwater by importing available surplus water and flood release water from reservoirs on the

San Joaquin, Kings, and Kaweah Rivers and placing it in recharge basins. KCWD practices appear to be producing positive results because the rate of decline in groundwater levels is less after 1954 than in years preceding formation of KCWD. KCWD efforts are enhanced by the cooperation of Last Chance, Peoples, Settlers, and Lakeside Ditch Companies that provide the conveyance system to these basins and help regulate the rate of recharge. Furthermore, they help distribute surface water purchased by KCWD to local farmers who would otherwise pump groundwater.

Approximately 135,000 acres (nearly 95 percent) in KCWD is irrigated agriculture. Surface water supplies for irrigation come from diversions of the Kings and Kaweah Rivers, and from exchanges and purchases of CVP and SWP water. The supply of surface water is inconsistent, and ranges from a low of 30,000 af in 1997 to a high of 327,000 af in 1983. The estimated average surface supply is 150,000 af.

Due to inadequate surface water supplies, even in wet years, to meet the total demands for water within KCWD, groundwater is pumped through private wells owned by landowners to meet their individual needs. In addition, all the water requirements to meet M&I users is pumped. Approximately 282,500 af of groundwater is pumped annually resulting in overdraft. This condition is expected to worsen as the urban population grows.

KCWD 1996 Crop Map, showing land use information from DWR 1996 Land Use Survey, indicated that approximately one-half of KCWD 's area is field crops, with high proportions of the remaining land used to grow grain and hay, deciduous fruits and nuts. There is a smaller amount of land planted in vineyards as well as citrus, plus truck, nursery and berry crops. The City of Hanford (population approximately 49,000), the County seat of Kings County, is situated in the geographical center of KCWD. The 1996 map indicated that approximately 25 percent of KCWD area is semi-agricultural or non-agricultural. According to KCWD, there is a slow but steady development trend in land uses from agriculture to urban as the City expands and small agricultural acreages are converted to home sites.

The lands that are served by KCWD have been in cultivation for several decades or longer, with some of the People's Ditch Company ditches dating back to the 1870-1890 period. KCWD has purchased varying amounts of CVP water since 1956. Water purchases have ranged from a low of 1,639 af in 1997-98 to a high of 28,969 af in 1998-99.

KCWD receives FKC water when it is diverted from FKC into the Kings River by an existing diversion structure. Water is diverted from the Kings River at People's Weir, just west of Highway 99. Water is diverted into the People's Ditch Company's main canal, of which KCWD is a stockholder. From the main canal KCWD can divert water into several ditches within their boundaries to be delivered to the landowners.

The Service lists 12 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within KCWD. Out of the 12 species likely to occur in KCWD, three species have been sighted in the KCWD action area according to the CNDDB. These species are *B. lynchi*, *L. packardi* and *A. californiense*. All of these species each have two sightings. In addition, while there are no listed sightings of *Vulpes macrotis mutica*, the CNDDB considers most of KCWD to be potential habitat for the kit fox.

S. o. relictus, *D. n. nitratoides*, *D. c. dimorphus*, *B. lynchi* and *L. packardi* have CNDDB records within two miles of the service area.

KCWD has no areas that are being actively managed as a preserve or refuge. KCWD has no Federally designated or proposed critical habitat.

Table 20: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Kings County Water District.

	Status	CNDDB Sighting Index Number
Plants		
Mammals		
Dipodomys nitratoides exilis - Fresno kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	**14608**, **14607**
Vulpes macrotis mutica - San Joaquin kit fox	FE	None
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	41569, 41571, **18594**
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	**12215**
Lepidurus packardi - Vernal pool tadpole shrimp	FE	41568, 41572, **35402**
Amphibians		
Ambystoma californiense - California tiger salamander	FT	44980, 46426
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	**34953**
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Haliaeetus leucocephalus -	FT	None

	Status	CNDDB Sighting Index Number
Bald eagle		
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 21: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Kings County Water District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	81.32	Non-Native	Yes
Residential/Commercial	240.70	Non-Native	Yes
Mixed Urban	337.50	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	117887.10	Non-Native	Yes
Orchard & Vineyard	20641.20	Non-Native	Yes
Confined Feeding Operations	2974.20	Non-Native	Yes
Idle Land	62.20	Non-Native	Yes
Water	433.10	Native	Yes
Grassland & Unknown Rangeland	320.50	Native	Yes
Shrub & Mixed Rangeland	0.00	Native	Yes
Forest	0.00	Native	No
Wetlands	15.00	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	7.20	Native	No
TOTAL:	143000.00		
TOTAL NATIVE:	775.80		
TOTAL NON-NATIVE:	142224.20		

Acreage shared with: KDWCD, KRCD

Kings River Conservation District

KCRD is a water resources and energy management agency located in the central San Joaquin Valley. KRCD was established in the fall of 1951. Its boundaries include the entire service area of the Kings River-an area of approximately 1,100,000 acres, plus an additional area of approximately 140,000 acres outside of the Kings River service area.

KRCD's mission is to provide flood protection, achieve a balanced and high quality water supply, and develop power resources within its boundaries.

KCRD is a public agency that coordinates common interests on the Kings River. KRCD does not collect membership dues from partner units. The 35 partner units are listed and described below:

Alta Irrigation District
Clark's Fork Reclamation District No. 2069
CID
CoID
Empire West Side Irrigation District
Fresno Irrigation District
James Irrigation District
KCWD
KRWD
Laguna Irrigation District
LIWD
Liberty Water District
Mid-Valley Water District
Raisin City Water District
Riverdale Irrigation District
Salyer Water District
Stratford Irrigation District
Tranquility Irrigation District
TLBWSD
Tulare Lake Reclamation District No. 761
Burrell Ditch Company
Corcoran Irrigation Company
Crescent Canal Company
John Heinlen Mutual Water Company
Last Chance Water Ditch Company
Lemoore Canal and Irrigation Company
Liberty Canal Company
Liberty Mill Race Company
Lovelace Water Corporation
Peoples Ditch Company
Reed Ditch Company
Southeast Lake Water Company
Stinson Canal and Irrigation Company
Tulare Lake Canal Company
Upper San Jose Water Company

KRCD partner units are described below:

Alta Irrigation District

Alta Irrigation District (AID)is located east and south of the Kings River and was California's first public irrigation district formed (in 1888) to actually deliver water to its users. AID 's Alta Canal transports water into a system which serves the area from Reedley to an area west of Orange Cove in eastern Fresno County, and the Dinuba, Orosi, and Traver areas of northern Tulare County. AID 's total area is 130,000 acres of which irrigated ag is 90,000 and M&I is 40,000 acres. Main crops are peaches, nectarines, plums, citrus, and grapes.

Clark's Fork Reclamation District No. 2069

Clark's Fork Reclamation District No. 2069 delivers a limited amount of water to the Kings County "island" formed by the Kings River's Clark's Fork and South Fork channels northwest of Lemoore. The District has no District distribution system. Diversions are all by pumping through 30 individual pumping facilities along the Clark's Fork and South Fork channels. Clark's Fork Reclamation District No. 2069 has a service area is 1,920 acres. Irrigated acres are 1,800 and 120 acres are fallow. Main crops are cotton, alfalfa and wheat.

Consolidated Irrigation District

CID is described elsewhere in this Section as an independent entity. CID has been determined to require separate environmental review for temporary water service contracts or transactions with the CVP Contractors involving CVP water.

Corcoran Irrigation District

CoID is described earlier in this appendix.

Empire West Side Irrigation District

Empire West Side Irrigation District serves a narrow territory which stretches more than seven miles along the South Fork's right (west) bank from above Empire No.1 Weir, an area running northwest to southwest of Stratford in Kings County. Empire West Side Irrigation District also is a SWP contractor with deliveries made through TLBWSD Lateral A, which leaves the Aqueduct at Kettleman City. Empire West Side Irrigation District serves agricultural water to its service area comprising 6,400 acres.

Fresno Irrigation District

Fresno Irrigation District (FID) is a member of KRCD and is also a CVP Long-Term Contract. The District takes delivery of the City of Fresno's Class 1 water amounting to 60,000 af/y and 75,000 af/y of Class 2 water from the Friant Division. The FID entitlement under the complex Kings River water diversion schedules is the largest in KRCD. Surface water transported by the District to groundwater recharge basins sustains the groundwater which is presently the only source of municipal and industrial water for the metropolitan Fresno-Clovis area. Surface water used for agricultural irrigation is also a major groundwater recharge contributor. FID stretches

from the base of the Sierra foothills to west and south of Kerman. FID 's internal water distribution system is extensive and complex. FID provides water (through the Fresno entitlement) to the Freewater County Water District north of Sanger

FID 's territory encompasses much of the northern valley floor portion of Fresno County and embraces the cities of Fresno and Clovis. Other communities within FID service area include Kerman and Biola. FID 's service area is the largest of any member unit. The service area is 245,246 acres. Irrigated agriculture is 152,694 and M&I is 92,552 acres.

James Irrigation District

James Irrigation District (JID) formerly served its agricultural users with Kings River water diverted through the James Main and Beta Main canals. JID 's mission is to deliver agricultural water and has a service area of 25,800 irrigated acres.

Since 1963, JID 's primary surface water supply (under water exchange agreements with both JID and Tranquillity Irrigation Districts (TID) and the lower Kings River units) has been CVP water pumped from the Mendota Pool. JID diverts Kings River water only when flood release flows are available. Water enters JID by diversions of Kings River water at the James Weir; Diversions of CVP water pumped from Mendota Pool into the James Bypass; diversions of San Joaquin River water from Mendota Pool through the James Bypass; delivery from a well field through lined canals and pipelines along Lassen Avenue and McMullin Grade Road; and spill from FID into a lined canal along McMullin Grade Road (not an entitlement). No water leaves JID.

JID and TID are the two most northwesterly units and have an exchange agreement resulting in water being imported into the Kings River service area on a regular basis. JID and TID are also CVP Contractors. The two districts leased their average annual Kings River entitlement to other lower Kings River units at a price equal to that paid by JID and TID to purchase a like amount of CVP water delivered at Mendota Pool through the Delta-Mendota Canal under their CVP long-term contracts. Up to 26,600 acre feet of JID and TID entitlement in any one year is credited by the lower Kings River units to help facilitate minimum Pine Flat releases for fish and wildlife, channel conveyance losses and other administrative purposes. JID and TID benefit by avoiding enormous Kings River channel losses in exchange for 100percent water deliveries from Mendota Pool while assisting other Kings River units in resolving their own channel loss problems.

Kings County Water District

KCWD is described earlier in this appendix as a separate individual entity.

Kings River Water District

KRWD serves much of the Centerville Bottoms area northeast, east and southeast of Sanger. The Centerville Bottoms is a rich and beautiful delta containing many wooded areas and complex, secluded sloughs which, supplied by the Kings River, ultimately flow back into the main stream. KRWD 's senior water rights and small delivery system capacity combine to enable KRWD to deliver water much of the year. KRWD 's service area is 25,800 acres of which 10,000 acres are irrigated agriculture. KRWD does not provide M&I water. Water enters KRWD by diversions from the Kings River. No water leaves KRWD.

Laguna Irrigation District

Laguna Irrigation District (LID) serves an area of southern Fresno County and northern Kings County west of Laton and south, southeast and southwest of Riverdale. The total service area is 35,000 acres with a substantial portion that includes the historic Rancho Laguna de Tache grant. This grant was a 48,800 acre Mexican land grant which included a 26 mile stretch along the original Kings River channel's right bank (below the modern site of Kingsburg. LID 's southerly boundary is generally along the Kings River. The grant was complex but played a pivotal role in the eventual settlement of Kings River water rights and entitlements through its 1892 purchase by the Fresno Canal and Irrigation Company, and gained control of the grant's riparian water claims. In 1897, the manager of the Fresno canal system and the Laguna ranch owner negotiated the first partial Kings River water entitlement schedules. This ultimately led to later agreements that resolved all Kings River water rights and entitlement issues. LID has a total area of 35,000 acres of which 20,700 are agricultural. LID does not provide M&I water.

Lakeside Irrigation Water District

LIWD is discussed later in this appendix.

Liberty Water District

LWD is discussed later in this appendix.

Mid Valley Water District

Mid Valley Water District is comprised of 13,406 agricultural acres. Water is delivered by pumping from the James Bypass. Mid Valley Water District does not provide M&I water.

Raisin City Water District

Raisin City Water District has a total of 53,500 acres, of which, 43,500 are agricultural, 5,000 are M&I and 5,000 are fallow. Raisin City Water District does not provide M&I water.

Riverdale Irrigation District

Riverdale Irrigation District serves rural portions of the Riverdale community between Murphy Slough and the King River's North Fork. The District's Kings River entitlement is combined

with the Reed Ditch Company and Liberty Mill Race Company under the Murphy Slough Association. Riverdale Irrigation District 's total area is 15,000 acres, of which, 14,000 acres are ag, 700 are M&I and 300 are fallow. Water is diverted from the Kings River near the town of Laton. No water is returned to the river.

Salyer Water District

Salyer Water District still exists but is no longer functioning and will not be receiving CVP water.

Stratford Irrigation District

Stratford Irrigation District service area is 9,750 agricultural acres and serves the left (east) bank of the South Fork, below Empire No.1 Pool. Stratford Irrigation District serves the Stratford area of Kings County. Stratford Irrigation District does not provide M&I water. Water is diverted from the Kings River at Lemoore Weir into the Lemoore Canal, or from the Kings River at Empire Weir No.1 or Empire Weir No.2.

Tranquillity Irrigation District

TID is a CVP contractor and has already undergone extensive environmental review and is not the focus of this BA. TID has a service area of 10,700 agricultural acres and is a CVP long-term contractor. TID is the northwesterly unit in KRCD. TID 's surface water supply (under the TID exchange agreement) is pumped from the Mendota Pool. TID 's former Kings River diversion facilities, the Lone Willow Channel and Beta Main Canal, were last used in 1958 and are abandoned.

Tulare Lake Basin Water Storage District

TLBWSD has requested a Temporary Water Service Contract as a separate contractor. TLBWSD is described earlier in this section

Tulare Lake Reclamation District No. 761

Tulare Lake Reclamation District No. 761 receives most of its water supplies through the Blakeley Canal, originating at Empire Weir No. 2, and Lateral A from the SWP. Tulare Lake Reclamation District No. 761 delivers water to lands on the western and southwestern sides of the Tulare Lake Bed in Kings County. Tulare Lake Reclamation District No. 761 has a service area of 37,000 acres, of which, 16,000 acres are agricultural and none are M&I. The remaining acres are fallow/idle and portions serve as wetlands. Main crops are wheat and alfalfa.

Burrel Ditch Company

Burrel Ditch Company has a service area of 4,500 agricultural acres and is a mutual water company. The company delivers water from Murphy Slough into the company's small service

area in the Burrel area, east of Fresno Slough. Main crops are wine grapes, almonds, alfalfa and silage corn.

Corcoran Irrigation Company

Corcoran Irrigation Company has no designated service area and is a mutual water company serving the Corcoran area of eastern Kings County with water transported 25 miles through the Lakelands Canal system from People's Wier, south of Kingsburg. The Peoples Weir is the largest of all such Kings River structures and spans the main channel a mile south of the Fresno County of Kingsburg just inside the northeastern corner of Kings County. It creates a large pool from which water may be diverted into the Lakelands Canal, which flows from the left bank 25 miles to the Corcoran area, or into the People's Ditch. Those privately owned canals deliver water to users in a substantial portion of eastern Kings County, all the way south to the Tulare Lake Bed.

Crescent Canal Company

Crescent Canal Company has a service area of 13,100 agricultural acres and is a mutual water company serving an area west of the Kings River North Fork and Fresno Slough, several miles of west of Riverdale. Deliveries are through the company's Crescent Canal. The Crescent Weir is located a few miles southwest of Riverdale and four miles below State Route 41 where North Fork flood release quantities are typically measure and confirmed. Beginning here is the Crescent Canal Company's ditch. Main crops are cotton, seed alfalfa and safflower.

John Heinlen Mutual Water Company

John Heinlen Mutual Water Company has a service area of 13,100 agricultural acres and serves stockholders in a Kings County area north and northwest of Lemoore. Main crops are cotton and alfalfa.

Last Chance Water Ditch Company

Last Chance Water Ditch Company is a mutual water company which serves stockholders within a large portion of Kings County, southwest of Laton and north and west of Hanford, as well as, portions of the Tulare Lake Bed. The company has a service area of 39,000 agricultural acres. Main crops are stone fruit and walnuts.

Lemoore Canal and Irrigation Company

Lemoore Canal and Irrigation Company is a mutual water company serving stockholders in the Lemoore area of Kings County. The company's large service area has one of the most substantial lower river water entitlements. The company's service area is 52,300 agricultural acres. Main crops are cotton, wheat and safflower.

Liberty Canal Company

Liberty Canal Company is a mutual water company and delivers water through the Liberty Canal which flows northwesterly from Laton to the company's service area of 5,300 irrigated acres north of Riverdale. Main crops are orchards, vines and row crops.

Liberty Mill Race Company

Liberty Mill Race Company is a mutual water company receiving water through Murphy Slough and serves an area, approximately 8,100 irrigated acres, north and northwest of Riverdale and near Burrel.

Lovelace Water Corporation

Lovelace Water Corporation, a private water company, serves the northern portion of the Tulare Lake Bed with deliveries make through the Kings River South Fork Canal and the Tulare Lake Canal. Lovelace Water Corporation has no designated service area.

People's Ditch Company

People's Ditch Company is a mutual water company providing water service over an extensive portion of northeastern Kings County (including the Hanford area), as well as, making deliveries to stockholders in the Tulare Lake Bed. The company operates People's Weir which was discussed in this section under Corcoran Irrigation Company. In wet years, surplus water deliveries through the People's Ditch are ponded in the KCWD's extensive system of groundwater recharge basins and channels. The People's Ditch Company has no designated service area.

Reed Ditch Company

Reed Ditch Company is a mutual water company serving a small area northwest of Riverdale with water delivered through Murphy Slough. The company's service area is 3,500 irrigated agricultural acres. Main crops are trees, row crops and vines.

Southeast Lake Water Company

Southeast Lake Water Company is a mutual water company with no designated service area. The company delivers water to stockholders in portions of the Tulare Lake Bed.

Stinson Canal and Irrigation Company

Stinson Canal and Irrigation Company is a mutual water company and has a service area of 15,500 irrigated agricultural acres serving an area west of the left bank of the North Fork and Fresno Slough, west and northwest of Burrel. Deliveries are through the company's Stinson Canal. Main crops are row crops.

Tulare Lake Canal Company

Tulare Lake Canal Company is a mutual water company and has no designated service area. The company provides water to stockholders in portions of the Tulare Lake Bed.

Upper San Jose Water Company

Upper San Jose Water Company serves a narrow area about seven miles along the western sides of the South Fork, Clark's Fork and the Crescent Bypass, just east of Lemoore Naval Air Station in Kings County. The company has no designated service area.

Ditch companies are entities that do not have specific geographic boundaries. However, they own canals and ditches that provide the mechanism to deliver water to the stock holders.

Besides groundwater potential water supplies are Kings River and streams tributary thereto, such as Mill Creek, Sand Creek, Wahtoke Creek and other minor streams flowing into KRCD, Kaweah, St. Johns and Tule Rivers, SWP, and CVP (Friant Division or CVC Divisions supplies).

Facilities for Delivery of CVP Water

Friant CVP water can enter directly into KCRD from the FKC through turnouts into FID and through waste ways located at the Kings River, St. Johns River, Kaweah River and Tule River.

Water originating in the FKC and diverted into FID or the Kings River will have the potential to flow throughout most of the District.

Water originating in the FKC and diverted at points south of the Kings River will be limited to flowing to only the southern half of the District.

Potential Sources of Exchange Water

KRCD acting in concert with or on behalf of agencies or entities within its boundaries has access to five potential sources of water that could be exchanged for CVP water supplies (Friant Division or Cross Valley supplies):

1. Kings River waters and streams tributary to the Kings River (i.e. Mill Creek);
2. Sand Creek, Wahtoke Creek and other minor streams flowing into KRCD;
3. Kaweah, St. Johns, Tule River water – Exchanges utilizing CVP water can potentially be used to facilitate delivery of water from these other river systems;
4. SWP water and;
5. Groundwater.

Kings River water is available to the lands served by the KRCD by diversion from the Kings River at numerous established points of diversion along the river and subsequently from various canals and pipelines owned and operated by public water agencies and private water companies.

Local minor stream transect a number of the districts within KRCD with established diversion points where many of these streams cross District distribution systems. Entities within KRCD own water rights on some of the Tule and Kaweah / St. Johns River systems. The FKC also traverses these drainages providing the potential for exchanges that could allow KRCD interests access to these other water supplies. Other river systems tributary to lands within Friant Division of the CVP may also provide future opportunities for exchanges involving CVP water.

SWP water supplies are accessed from turnouts along the Aqueduct and subsequently from public and privately owned canals and pipelines that transport the water for use within the KRCD.

Exchanges involving groundwater could occur virtually anywhere within the KRCD that has access directly or through additional exchange to CVP surface water supplies.

Potential Exchange Functions

Exchanges involving CVP supplies have occurred or may occur for the following reasons:

1. Exchanges to access surface storage – There are times when surface reservoirs accessible to KRCD interests are at varying levels of fullness. Water availability on a particular river may not match up with the ability of the surface storage on that river system to control or regulate the supply in order to match demands. Exchanges can be used to affect the storage of CVP water in a non-CVP reservoir and visa versa. There may also be monetary or water resource gains associated with facilitating such exchanges.
2. Exchanges to access groundwater storage – "In lieu" groundwater recharge can be facilitated with exchanges that deliver CVP surface water to lands that would otherwise be pumping groundwater. Similarly, CVP deliveries into river reaches to offset river losses effecting "in lieu" groundwater recharge elsewhere by virtue of making the displaced surface water (otherwise charged as river loss) available to these other areas.
3. Exchanges to allow delivery of non-CVP water to CVP districts – Lands capable of being served with both CVP and non-CVP surface water supplies can facilitate an exchange of water so as to effect the movement of the non-CVP supply through CVP facilities without actually having to physically transport the non-CVP supply through the CVP facilities.

Exchanges to allow delivery of CVP water to non long-term CVP districts – Similar to 3 above, lands capable of being served with both CVP and non-CVP supplies can facilitate an exchange

of water so as to effect the movement of CVP supplies through non-CVP facilities without actually having to physically transport the CVP supplies through the non-CVP facilities.

KRCD has two areas that are being actively managed as preserves and/or refuge. Both are managed by the CDFG and encompass approximately 15,036 acres, of which only a small portion is within the bounds of the KRCD.

Critical habitat for listed species is not present within the District. However, critical habitat for *D. n. exilis* lies adjacent to the northern boundary of the KRCD in the northwest corner of the District.

S. o. relictus, A. californiense, T. greenei, O. pilosa, C. palmatus, V. m. mutica, O. inaequalis, M. congdonii, C. c. ssp. *succulenta, D. n. nitratoides, D. c. dimorphus, B. lynchi* and *L. packardi* have CNDDB records within two miles of the service area.

The Kings River flows approximately 20 miles from where it crosses the FKC to a major delivery point of Peoples Weir. This area could provide habitat for giant garter snake and likely crosses areas providing habitat for *A. californiense.*

Table 22: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Kings River Conservation District.

	Status	**CNDDB Sighting Index Number**
Plants		
Botrychium lineare – Slender moonwort	FC	None
Castilleja campestris ssp. *succulenta* – Fleshy (=succulent) owl's clover	FT	**17658**, **30719**, **6195**, **35375**
Chamaesyce hooveri - Hoover's spurge	FT	407, 2447, 18740, 32044, 32049
Cordylanthus palmatus – Palmate-bracted bird's-beak	FE	**6077**
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	**18738**, **16501**, **2442**
Orcuttia inaequalis - San Joaquin Valley Orcutt grass	FT	22387, 35397, **22388**, **22386**
Orcuttia pilosa – Hairy orcutt grass	FE	**2301**
Pseudobahia peirsonii - San Joaquin adobe sunburst	FT	16860, 21673
Sidalcea keckii -	FE	None

	Status	CNDDB Sighting Index Number
Keck's checker-mallow (=checkerbloom)		
Tuctoria greenei - Greene's tuctoria (=Orcutt grass)	FE	22349, **22351**, **22344**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides exilis - Fresno kangaroo rat	FE	15167, 23963, 23967, 23969
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	14612, **14607**, **14608**
Vulpes macrotis mutica - San Joaquin kit fox	FE	9242, 9335, 21531, **48914**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	411, 844, 17093, 17094, 30639, 45196, **18594**, **1757**
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	4065, 34533, **34535**, **34536**, **35242**, **35243**, **35244**, **34390**, **4064**, **4066**, **12215**, **34527**
Lepidurus packardi - Vernal pool tadpole shrimp	FE	409, 45197, **35402**
Amphibians		
Ambystoma californiense - California tiger salamander	FT	408, 1334, 7030, 7033, 22622, 46277, 46426, 46427, **28398**, **1755**, **46277**, **46541**, **46630**
Rana aurora draytonii - California red-legged frog	FT	None
Rana muscosa – Mountain yellow-legged frog	FC	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	**34953**, **27808**, **27811**, **27805**, **27803**, **27754**, **44382**
Thamnophis gigas - Giant garter snake	FT	1751, 27607
Birds		
Charadrius alexandrinus nivosus - Western snowy plover	FT	None
Falco peregrinus anatum - American peregrine falcon	FD	None
Gymnogyps californianus - California condor	FE	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

	Status	CNDDB Sighting Index Number
Oncorhynchus mykiss - South Central California steelhead	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 23: Land Use Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Kings River Conservation District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	886.04	Non-Native	Yes
Residential/Commercial	3332.78	Non-Native	Yes
Mixed Urban	7929.00	Non-Native	Yes
Barren	464.15	Native	Yes
Crop & Pasture	60908.10	Non-Native	Yes
Orchard & Vineyard	41588.29	Non-Native	Yes
Confined Feeding Operations	1404.77	Non-Native	Yes
Idle Land	516.00	Non-Native	Yes
Water	753.59	Native	Yes
Grassland & Unknown Rangeland	4952.99	Native	Yes
Shrub & Mixed Rangeland	115.04	Native	Yes
Forest	168.46	Native	Yes
Wetlands	327.70	Native	Yes
Retired Farmland	3.01	Native	No
Riparian	376.75	Native	Yes
TOTAL:	123726.68		
TOTAL NATIVE:	7161.69		
TOTAL NON-NATIVE:	116564.99		

Acreage shared with: CoID, DCTRA, KDWCD, KWB, KCWD, LIWD, LWD, TLBWSD.

Lakeside Irrigation Water District

LIWD is located east of the city of Hanford and the northern portion of the District crosses Hwy 198. LIWD is situated within KCWD, KDWCD and a portion within KRCD. LIWD is not represented by the above listed umbrella agencies. LWID is a member of the Mid-Valley Water Authority; however, Mid Valley Water Authority is not included as a participant in this Proposed Action and environmental analysis. LIWD has a total of 31,917 acres. In LIWD's 1998 Annual Report, approximately 27,155 acres were irrigated agricultural land, 1,817 acres were non-agricultural land and 2,945 acres were idle/fallow land that could be irrigated.
LIWD has maintained a crop survey since its formation in 1962. In 2000 the four largest crops were cotton (9,879 acres), corn (7,697 acres), silage grains (6,521 acres), and alfalfa (5,133 acres). Portions of these crops were single or double cropped for a total of 33,643 acres planted. The balance of agricultural land in the district was planted in various tree crops, grasses, vegetables and sugar beets.

LIWD receives CVP water from the FKC via the Kings River and Lakelands Canal or through the St. Johns River and Cross Creek to the headgate of the LIWD distribution system.

The Service lists 13 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within LIWD. Of the 13 species likely to occur in LIWD no species have been sighted in the LIWD action area according to the CNDDB. However, while there are no listed sightings of *V. m. mutica*, the CNDDB considers the entire district to be potential habitat for the species.

S. o. relictus and *D. n. nitratoides* have CNDDB records within two miles of the service area.

LIWD has no areas that are being actively managed as a preserve or refuge. LIWD has no federally designated or proposed critical habitat.

Table 24: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Lakeside Irrigation Water District.

	Status	CNDDB Sighting Index Number
Plants		
Mammals		
Dipodomys nitratoides exilis - Fresno kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	**14607**
Vulpes macrotis mutica - San Joaquin kit fox	FE	None
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Lepidurus packardi - Vernal pool tadpole shrimp	FE	None
Amphibians		
Ambystoma californiense - California tiger salamander	FT	None
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	**34953**
Thamnophis gigas -	FT	None

	Status	CNDDB Sighting Index Number
Giant garter snake		
Birds		
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 25: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Lakeside Irrigation Water District (1998)			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	676	Non-Native	Yes
Residential/Commercial	723	Non-Native	Yes
Mixed Urban	0	Non-Native	Yes
Barren	0	Native	No
Crop & Pasture	25,203	Non-Native	Yes
Orchard & Vineyard	1,302	Non-Native	Yes
Confined Feeding Operations	238	Non-Native	Yes
Idle Land	2,945	Non-Native	Yes
Water	650	Native	Yes
Grassland & Unknown Rangeland	180	Native	Yes
Shrub & Mixed Rangeland	0	Native	Yes
Forest	0	Native	No
Wetlands	0	Native	Yes
Retired Farmland	0	Native	No
Riparian	0	Native	No
Misc. Non-Ag	0		
TOTAL:	31,917		
TOTAL NATIVE:	830		
TOTAL NON-NATIVE:	31,087		

Acreage shared with: KDWCD, KCWD, and KRCD

Liberty Water District

LWD is located in Fresno County south of the city of Caruthers and northerly of the cities of Riverdale and Laton and is bisected by Highway 41. LWD comprises 21,189 acres and all lands are irrigated agriculture. LWD has historically grown row crops, alfalfa, grains which have been planted to tree crops, and vines with little or no change in the annual crop water demand for LWD. LWD would utilize CVP water exclusively for agricultural use or recharge of groundwater and would not transfer the CVP water. LWD has no M&I use within LWD.

LWD has consistently entered into short-term and temporary water service contracts with Reclamation for the purchase of surplus CVP water. LWD has also acquired CVP water through transfers from long-term CVP contractors, as available. LWD could receive CVP water through the FKC via the Kings River where the water is diverted into the Liberty Canal and distributed within the district.

The Service lists 14 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within LWD. *Vulpes macrotis mutica* is the only species sighted in the LWD action area according to the CNDDB. The southeastern portion of the district is listed as potential habitat for the species in the CNDDB.

No federally listed or proposed species have CNDDB sightings within a two-mile distance of the LID boundary.

There are no areas that are being actively managed as a preserve or refuge in LWD. There are no designated or proposed critical habitats in LWD.

Table 26: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Liberty Water District.

	Status	CNDDB Sighting Index Number
Plants		
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Mammals		
Dipodomys nitratoides exilis - Fresno kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	None

	Status	CNDDB Sighting Index Number
Vulpes macrotis mutica - San Joaquin kit fox	FE	None
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Lepidurus packardi - Vernal pool tadpole shrimp	FE	None
Amphibians		
Ambystoma californiense - California tiger salamander	FT	None
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	None
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None
Oncorhynchus mykiss - South Central California steelhead	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 27: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Liberty Water District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	174	Non-Native	Yes
Residential/Commercial	287	Non-Native	Yes
Mixed Urban	165	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	1632	Non-Native	Yes
Orchard & Vineyard	16082	Non-Native	Yes
Confined Feeding Operations	524	Non-Native	Yes
Idle Land	2075	Non-Native	Yes
Water	0.00	Native	No
Grassland & Unknown Rangeland	250	Native	Yes
Shrub & Mixed Rangeland	0.00	Native	No
Forest	0.00	Native	No
Wetlands	0.00	Native	No
Retired Farmland	0.00	Native	No
Riparian	0.00	Native	No
TOTAL:	21,189		
TOTAL NATIVE:	250		
TOTAL NON-NATIVE:	20,939		

Acreage shared with: KRCD

North Kern Water Storage District

NKWSD is situated in the San Joaquin Valley portion of Kern County and encompasses about 70,000 acres divided into two project areas. The 1950 NKWSD project of about 60,000 acres and the 1979 Rosedale Ranch Improvement District project of about 10,000 acres. Both are fully developed to irrigated agriculture, with almonds and grapes accounting for about 50 percent of the cropped area and stone fruit comprising the remaining amount. NKWSD is comprised of approximately 64,813 irrigated acres and about 74 percent is planted to permanent crops. Water supplies include Kern River, Poso Creek, oilfield waste water, and other smaller creeks.

1950 North Kern Project

The historical surface water supplies of NKWSDhave ranged from 6,000 af in a dry year to nearly 394,000 af in a wet year. Owing to the highly variable Kern River supply, NKWSD has been forced to regulate available surface water supplies from times of surplus (wet years) to

times of need (dry years). This regulation has been accomplished, to a large extent, through use of the underlying groundwater reservoir. During wet years on the Kern River, significant deliveries of surface water are made to irrigation and spreading (for groundwater recharge). For the purpose of groundwater recharge, NKWSD makes use of about 1,500 acres of recharge basins (water spreading areas); the dry channel of Poso Creek and several other controlled-flow facilities. In wet years, more than 200,000 af of water have been directed into recharge basins for replenishment of the groundwater aquifer. During dry years, deliveries of surface water to irrigation are greatly reduced and groundwater pumping is significant. Extraction of groundwater by means of district wells has ranged from zero to more than 80,000 af in one year. NKWSD has successfully operated its conjunctive use project for 50 years. The underlying groundwater is part of the larger groundwater basin which underlies the southern San Joaquin Valley. While NKWSD is in balance respecting water supplies and uses within its boundaries, groundwater levels are tied to the larger basin, which is in a condition of overdraft.

1979 Rosedale Ranch Improve District Project

After the above 1950 project was implemented lands were annexed to NKWSD with the specific requirement that the newly annexed lands would not share in the water supplies of the original project. The lands thus developed a distinct and separate project with the purchase of water supplies during wet years from Kern River rights of the City of Bakersfield. The Rosedale Ranch project has approximately 14 miles of unlined canals for the direct delivery of water or irrigation. The focus of the project was groundwater recharge through a combination of in-lieu-pumping deliveries and canal losses which has totaled up to 31,000 af. NKWSD does not supply M&I water service.

The FKC bisects NKWSD with less than 50 percent of NKWSD uphill of the FKC. There is a turnout on the North side of Poso Creek on the FKC. NKWSD has a weir across Poso Creek on the Calloway Canal approximately 1-1/2 miles below the FKC. In addition, NKWSD has a pump station on the Calloway Canal at Kimberlina Road that is used to deliver water supplies to SWID via SWID's North Pipeline. The pump station can also allow water to flow into the Calloway Canal at this location. NKWSD also has a gravity outlet on the Calloway Canal near the intersection of Cherry and Fresno Avenues that is used to deliver water supplies from the SWID South Pipeline into the Calloway Canal. Finally, water supplies delivered at the end of the FKC can be exchanged for Kern River supplies being delivered at lower elevations. The Kern River supplies intended for lower elevations are diverted into NKWSD's higher elevation Beardsley Canal to be delivered to lands uphill of the FKC.

The Service lists 17 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within NKWSD. Out of the 17 species likely to occur in NKWSD three species have been sighted in the NKWSD action area according to the CNDDB. These species are *C. californicus*, *M. congdonii* and *V. m. mutica. O. treleasei, G. silus, S. o. relictus,*

C. californicus, V. m. mutica and *M. congdonii* all have CNDDB records within two miles of the service area.

NKWSD has no areas that are being actively managed as a preserve or refuge. NKWSD has no federally designated or proposed critical habitat.

Table 28: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within North Kern Water Storage District.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	20303, **20291**, **45710**
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	2748, 2750, 2766, 16485, **16492**, **16487**, **16489**, **16484**, **2767**, **2749**, **2749**
Opuntia treleasei -Bakersfield cactus	FE	**22401**, **22297**, **22778**, **22265**, **21436**, **12613**, **6278**, **6277**, **6270**, **2992**, **2991**, **2989**, **2988**, **2987**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	None
Sorex ornatus relictus - Buena Vista Lake shrew	FE	**43160**
Vulpes macrotis mutica - San Joaquin kit fox	FE	8096, **46024**, **48944**, **49105**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	**27869**, **27830**, **27731**
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None

	Status	CNDDB Sighting Index Number
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 29: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. “Shared acreage” indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

North Kern Water Storage District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	145.77	Non-Native	Yes
Residential/Commercial	26.17	Non-Native	Yes
Mixed Urban	186.38	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	2291.22	Non-Native	Yes
Orchard & Vineyard	3868.19	Non-Native	Yes
Confined Feeding Operations	1.67	Non-Native	Yes
Idle Land	162.12	Non-Native	Yes
Water	197.97	Native	Yes
Grassland & Unknown Rangeland	287.69	Native	Yes
Shrub & Mixed Rangeland	130.36	Native	Yes
Forest	0.00	Native	No
Wetlands	71.48	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	275.67	Native	Yes
TOTAL:	7644.68		
TOTAL NATIVE:	963.16		
TOTAL NON-NATIVE:	6681.52		

Acreage shared with: CWD, KCWA, KWB, RRBWSD

Rosedale-Rio Bravo Water Storage District

RRBWSD is located west of Bakersfield in Kern County. RRBWSD has a gross area of approximately 43,000 acres with a net estimate of 33,400 irrigated agricultural acres. Approximately 3,900 acres are fallow lands, 2,500 acres undeveloped lands and 1,100 acres of canals and recharge basins. RRBWSD is primarily planted to alfalfa hay, almonds, grain, cotton and corn. All water coming into RRBWSD has been for groundwater recharge and overdraft correction. RRBWSD does not serve M&I water.

Water used within RRBWSD was historically supplied from landowner wells pumping from the groundwater basin, with a small amount (an average about 15,000 afy) of irrigation diversions to lands adjacent to the district's groundwater recharge project. Prior to operation of RRBWSD 's groundwater recharge project, pumping extractions exceeded the safe yield of the local groundwater supply, and a substantial overdraft in the range of 40,000 to 50,000 afy occurred annually. As a result of this overdraft, groundwater levels were declining at a rate of 8 to 10 feet per year.

In 1959, RRBWSD was formed to develop a groundwater recharge project to offset the overdraft. Construction of the recharge project was completed in 1962. The physical features of the project include facilities to divert waters from the Kern River and the joint use CVC into the Goose Lake Slough Channel, the channel itself and recharge basins.

RRBWSD has completed construction of additional recharge basins and now has a wetted area of approximately 840 acres available for groundwater recharge. RRBWSD is also a recharge participant in the Pioneer Project, and as such, has first priority to 25 percent of the total recharge capacity. This provides RRBWSD an additional 50 cfs of recharge capacity.

RRBWSD acquires water for recharge purposes from the Kern River through a water service agreement with the city of Bakersfield, from the FKC of the CVP, as available, and from the SWP through a water supply contract with the KCWA. Water supplies from these three sources have averaged about 62,000 afy for the years 1962 through 1999 or about 79 percent of the cumulative consumptive use during those years.

The SWP contract was originally to provide RRBWSD with an average (firm and surplus) of about 29,900 afy. However, RRBWSD is now expected to receive only about 76 percent of its firm entitlement or about 22,700 afy. RRBWSD has also been unable to renew its short-term contract with Reclamation and is now only able to obtain surplus CVP water or through transfers. Currently, there are no export facilities in RRBWSD.

The CVP surplus water makes its way into the RRBWSD by flowing southerly to the terminus of the FKC. At this point, the water can flow into the Kern River Channel and then flow southwesterly for two miles to RRBWSD Kern River headworks. The other option is for the water to enter the Arvin-Edison bypass into the CVC and then flow southwesterly to the RRBWSD's CVC turnout #2.

The Service lists 18 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within RRBWSD. Out of the 18 species likely to occur in RRBWSD, four species have been sighted in the RRBWSD action area according to the CNDDB. These species are *C. californicus, E. hooveri, D. n. nitratoides* and *G. silus*. All of these species have three or fewer sightings. In addition, while there are no listed sightings of *V. m. mutica*, the CNDDB considers the district to be potential habitat for the species.

G. silus, S. o. relictus, T. gigas, M. congdonii and *D. n. nitratoides* all have CNDDB records within two miles of the service area.

RRBWSD has no areas that are being actively managed as a preserve or refuge. RRWSD has no federally designated or proposed critical habitat.

Table 30: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Rosedale-Rio Bravo Water Storage District.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	20291
Eremalche kernensis - Kern mallow	FE	None
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	16484, 16487, 16492
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	**2766**, **2767**
Opuntia treleasei - Bakersfield cactus	FE	None
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	14572, 14586, 14587, **14585**, **14575**, **14573**, **12423**, **34113**
Sorex ornatus relictus - Buena Vista Lake shrew	FE	**43158**
Vulpes macrotis mutica -	FE	None

	Status	CNDDB Sighting Index Number
San Joaquin kit fox		
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	27841, **27832**, **27706**, **34112**
Thamnophis gigas - Giant garter snake	FT	**1572**, **1550**
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 31: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates weather some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Rosedale Rio Bravo Water Storage District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	45.54	Non-Native	Yes
Residential/Commercial	208.39	Non-Native	Yes
Mixed Urban	301.37	Non-Native	Yes
Barren	0.00	Native	No
Crop & Pasture	2490.11	Non-Native	Yes

Rosedale Rio Bravo Water Storage District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Orchard & Vineyard	567.61	Non-Native	Yes
Confined Feeding Operations	39.23	Non-Native	Yes
Idle Land	36.91	Non-Native	Yes
Water	93.51	Native	Yes
Grassland & Unknown Rangeland	126.86	Native	Yes
Shrub & Mixed Rangeland	134.49	Native	Yes
Forest	0.00	Native	No
Wetlands	0.00	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	5.27	Native	Yes
TOTAL:	4049.29		
TOTAL NATIVE:	360.13		
TOTAL NON-NATIVE:	3689.16		

Acreage shared with: BVWSD, KCWA, KWB, NKWSD, and SWSD

Semitropic Water Storage District

SWSD is located in north-central Kern County in the San Joaquin Valley, about 20 miles northwest of the City of Bakersfield. SWSD was organized in 1958 to supply supplemental water within its boundaries. The total land area within SWSD is approximately 221,000 acres (345 square miles), with about 143,000 acres (223 square miles) irrigated area. Geographically, SWSD is located at the south end of the San Joaquin Valley, which is generally hotter and drier than other parts of the Valley.

During the 1960's, SWSD developed plans for main conveyance and distribution system facilities to extend from the Aqueduct to farm delivery locations. Prior to construction of the facilities, irrigated crops within Semitropic were totally dependent on groundwater pumping.

Semitropic initially contracted with the KCWA, for an annual firm entitlement of 158,000 af of SWP water and 25,100 af per year of surplus water. Semitropic gave up 3,000 af of entitlement to buy into KWB and now has 155,000 af annual firm entitlement of SWP water. This is used to irrigate approximately 42,300 acres in its contract water service area. Other water is available from the KCWA on an interruptible basis to deliver to other service areas totaling about 58,000 acres (consisting of a conjunctive surface water/groundwater surface area of about 28,500 acres and an in-lieu service area of about 29,500 acres). Farmers in all the service areas maintain wells to supplement SWSD aupplies and protect against shortages. Nearly 42,700 acres rely exclusively on groundwater. Landowners within SWSD apply approximately 480,000 af of water of which, in a very good year 350,000 af can be imported surface water with the remaining 130,000 af applied in the groundwater service area.

Approximately 72 percent of the land area in SWSD is included in the Buttonwillow and Pond Poso Improvement Districts leaving 28 percent in the "unorganized area". The "unorganized area" is a large, contiguous area in the northwest quarter of SWSD. This area is mostly not irrigated and does not benefit from the Proposed Action nor is it envisioned to be developed to irrigated agriculture.

SWSD provides water banking and owns a portion of the KWB. It should be noted that water banking for later (beyond one-year) is not included in this analysis and review process. SWSD also provides banking for conjunctive use for in-lieu storage to alleviate groundwater pumping. The Proposed Action and alternatives could result in providing CVP water to SWSD for the purpose of groundwater recharge or conjunctive use.

SWSD has three ways of recovering water from the FKC: (1) via Poso Creek through a FKC discharge structure into the creek. It is conveyed to SWSD's permitted diversion structure and delivered to irrigated lands and duck clubs in the surface water area of SWSD; (2) via interconnection facilities with SWID which conveys water from the FKC by pipeline directly into our canal system. Water is then conveyed to irrigated lands; (3) via spreading facilities located on the Kern Fan. SWSD is part owner of the Pioneer Project and the KWB, both of which are located on the Kern River Fan area. Water from the CVP has historically been delivered to these projects for storage purposes from the end of the FKC where it spills into the Kern River. It is then diverted from the river into these two projects.

The Service lists 18 federally threatened and endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within SWSD. Out of the 18 species likely to occur in SWSD seven species have been sighted in the SWSD action area according to the CNDDB. These species are the *C. californicus, E. kernensis, M. congdonii, D. n. nitratoides, S. o. relictus, G. silus* and western snowy plover. Five of these species have one sighting. The exceptions are for *D. n. nitratoides* with 16 sightings and *G. silus*, which has 24. In addition, while there are no listed sightings of *V. m. mutica,* the CNDDB considers most of the district to be potential habitat for the species.

G. silus, S. o. relictus, C. californicus, T. gigas, E. kernensis, V. m. mutica, M. congdonii and *D. n. nitratoides* all have CNDDB sightings within two miles of the service area.

SWSD has four areas that are being actively managed as preserves and/or refuge. The CNLM manages one of the preserves, one is managed by the Service as a wildlife refuge and two are managed by the CDFG. The property owned by the CNLM encompasses approximately 2,869 acres, all of which are within the bounds the SWSD. The Service's refuge is approximately 10,400 acres, most of which lies within the districts boundary. Only a small portion of the first CDFG property's approximate 475 acres is in SWSD. The second CDFG property is

approximately 1420 acres, most of which is in SWSD. SWSD has no federally designated or proposed critical habitat.

Table 32: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Semitropic Water Storage District.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	20295, **20305**, **20303**
Eremalche kernensis - Kern mallow	FE	2446, **20690**
Eriastrum hooveri - Hoover's eriastrum (= woolly-star)	FD	None
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	2745, **22383**, **16496**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	9781, 12423, 13173, 13336, 14573, 14574, 14576, 14588, 14589, 14590, 14592, 14594, 14595, 14596, 14597, 34113, **23908**, **14603**, **14598**, **14587**, **14586**, **14575**
Sorex ornatus relictus - Buena Vista Lake shrew	FE	43162, **43158**
Vulpes macrotis mutica - San Joaquin kit fox	FE	**8096**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	14773, 27688, 27689, 27691, 27699, 27728, 27731, 27732, 27733, 27735, 27738, 27739, 27766, 27773, 27816, 27820, 27822, 27826, 27827, 27831, 27832, 27834, 27835, 34112, **27829**, **27785**, **27741**, **27744**, **27736**, **14770**, **43705**
Thamnophis gigas - Giant garter snake	FT	**1572**

	Status	CNDDB Sighting Index Number
Birds		
Charadrius alexandrinus nivosus - Western snowy plover	FT	25727
Falco peregrinus anatum - American peregrine falcon	FD	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 33: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Semitropic Water Storage District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	108.18	Non-Native	Yes
Residential/Commercial	48.00	Non-Native	Yes
Mixed Urban	15.77	Non-Native	Yes
Barren	5.18	Native	Yes
Crop & Pasture	9866.24	Non-Native	Yes
Orchard & Vineyard	2591.89	Non-Native	Yes
Confined Feeding Operations	7.49	Non-Native	Yes
Idle Land	628.77	Non-Native	Yes
Water	104.27	Native	Yes
Grassland & Unknown Rangeland	2059.84	Native	Yes
Shrub & Mixed Rangeland	4151.71	Native	Yes
Forest	43.95	Native	Yes
Wetlands	1088.86	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	79.02	Native	Yes
TOTAL:	20799.17		

TOTAL NATIVE:	7532.83		
TOTAL NON-NATIVE:	13266.34		

Acreage shared with: BVWSD, KCWA, KWB, RRBWSD

Tulare Lake Basin Water Storage District

TLBWSD has a service area of 185,800 acres and its boundaries include nearly the entire Tulare Lake Bed. The area served by TLBWSD remains vulnerable to occasional flooding and drought-caused water supply shortages. The result, economically and physically, is that the Tulare Lake Bed is farmed in large tracts upon which annual field crops are produced. Small farmers cannot endure the financial burdens of Tulare Lake Bed agricultural operations.

TLBWSD is located southwest of the city of Corcoran in Kings County. TLBWSD was formed in 1926 at which time all the lands in the District were fully developed. All deliveries from TLBWSD are for agricultural purposes. Main crops are cotton, seed alfalfa and grain.

TLBWSD manages Kings River South Fork water deliveries at Empire No. 2 Weir near Stratford (immediately below State Route 41) in Kings County. Empire No. 2 Weir diverts Kings River water into the Tulare Lake, Kings River-South Fork and Blakeley canals which serve the Tulare Lake Bed. TLBWSD is a SWP contractor and is connected to the Aqueduct by Lateral A and B. Despite TLBWSD's state contract, the Tulare Lake Bed units rely most heavily on Kings River water for irrigation purposes.

CVP water is conveyed to TLBWSD via the Aqueduct or released into the Kings River, Kaweah River or Tule River from the FKC. Subsequent exchanges would likely be conveyed from the Kings River and Tule River systems by gravity. No other exchanges are contemplated. While the District has no formal water banking facilities, it does practice conjunctive use.

TLBWSD has requested a Temporary Water Service Contract for CVP supplies.

The Service lists 13 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within TLBWSD. Out of the 13 species likely to occur in TLBWSD no species have been sighted in the TLBWSD action area according to the CNDDB. While there are no listed sightings of *V. m. mutica,* the CNDDB considers some portions of the district to be potential habitat for the species.

S. o. relictus, V. m. mutica and *M. congdonii* all have CNDDB records within two miles of the service area.

TLBWSD has no areas that are being actively managed as a preserve or refuge. TLBWSD has no federally designated or proposed critical habitat.

Table 34: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Tulare Lake Basin Water Storage District.

	Status	CNDDB Sighting Index Number
Plants		
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	**18738**, **16501**, **2442**
Mammals		
Dipodomys ingens - Giant kangaroo rat	FE	None
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	None
Vulpes macrotis mutica - San Joaquin kit fox	FE	**48914**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	None
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	None
Lepidurus packardi - Vernal pool tadpole shrimp	FE	None
Amphibians		
Rana aurora draytonii - California red-legged frog	FT	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	**27808**, **27811**, **27805**, **27803**, **27754**, **44382**
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Falco peregrinus anatum - American peregrine falcon	FD	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted

FPE federal proposed endangered
FPT federal proposed threatened

Table 35: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. "Shared acreage" indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Tulare Lake Basin Water Storage District			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	1.78	Non-Native	Yes
Residential/Commercial	7.21	Non-Native	Yes
Mixed Urban	19.95	Non-Native	Yes
Barren	435.09	Native	Yes
Crop & Pasture	16656.78	Non-Native	Yes
Orchard & Vineyard	0.00	Non-Native	Yes
Confined Feeding Operations	0.00	Non-Native	Yes
Idle Land	21.99	Non-Native	Yes
Water	279.14	Native	Yes
Grassland & Unknown Rangeland	253.37	Native	Yes
Shrub & Mixed Rangeland	0.00	Native	No
Forest	0.00	Native	No
Wetlands	0.00	Native	No
Retired Farmland	0.00	Native	No
Riparian	0.00	Native	No
TOTAL:	17675.31		
TOTAL NATIVE:	967.60		
TOTAL NON-NATIVE:	16707.71		

Acreage shared with: CoID, KRCD

Deer Creek & Tule River Authority

DCTRA is composed of six irrigation districts, all located in the Central Valley's East Side, and all within Tulare County. DCTRA is comprised of six water contractors as depicted in Table 109. These six irrigation districts are Long-Term CVP Contractors and have already undergone environmental analysis.

Table 36: DCTRA Member Districts

Lower Tule River I.D.	Pixley I.D.
Porterville I.D.	Saucelito I.D.
Stone Corral I.D.	Terra Bella I.D.

The Service lists 23 T & E plants and animals, or plants and animals proposed for listing that occur or are likely to occur within DCTRA. Out of the 23 species likely to occur in DCTRA four species have been sighted in the DCTRA action area according to the CNDDB. These species are *D. n. nitratoides, B. lynchi, G. silus* and western snowy plover. The western snowy plover has a single sighting, while *D. n. nitratoides* has three sightings and the *B. lynchi* has four. *G. silus* has seven sightings, mostly in the southwestern part of the district. In addition, while there are no listed sightings of *V. m. mutica,* the CNDDB considers a portion of the district to be potential habitat for the species.

Direct and indirect effects on listed species are most likely to result from operations and maintenance activities within the authority and not from water. Because CVP water cannot be used for land conversion and the supply of CVP water is to be used for existing practices, cumulative impacts associated with this action are expected to be minimal, except to the extent that any broad changes in water availability alter the extent of current agricultural practices.

G. silus, C. californicus, A. californiense, C. hooveri, P. peirsonii, V. m. mutica, O. inaequalis, D. n. nitratoides, D. c. dimorphus, B. lynchi and *L. packardi* have CNDDB records within two miles of the service area.

DCTRA has two areas that are being actively managed for native habitat. One is owned by CNLM and encompasses approximately 3,200 acres, most of which is within the bounds of the DCTRA. The other is managed by the Service as a National Wildlife Refuge and covers approximately 4,200 acres, most of which is in the DCTRA. DCTRA does not have critical habitat for *S. keckii* within its boundary. The proposed ruling on critical habitat for this species was issued by the Service on June 19, 2002.

Records of *V. m. mutica* within 10 miles of the service areas covered in this BA are shown in a map in Appendix A. For a table of CNDDB records of V. macrotis sightings within 10 miles of the service areas, see Appendix F.

There were no records for *T. gigas* that were within five miles of the districts (other than those that were actually within the service areas in Kern County). Also, although the CNDDB reports *T. gigas* observations in Kern County as "presumed extant", the species is believed to have been extirpated south of northern Fresno County.

Table 37: Federally Listed Threatened and Endangered plants and animals, or plants and animals proposed for listing that occur or are likely to occur within Deer Creek & Tule River Authority.

	Status	CNDDB Sighting Index Number
Plants		
Caulanthus californicus - California jewelflower	FE	**20311**
Chamaesyce hooveri - Hoover's spurge	FT	**407**, **32049**
Monolopia (=*Lembertia*) *congdonii* - San Joaquin woolly-threads	FE	None
Opuntia treleasei - Bakersfield cactus	FE	None
Orcuttia inaequalis - San Joaquin Valley Orcutt grass	FT	**22389**
Pseudobahia peirsonii - San Joaquin adobe sunburst	FT	**12544**, **32158**, **32152**
Sidalcea keckii - Keck's checker-mallow (=checkerbloom)	FE	None
Mammals		
Dipodomys nitratoides nitratoides - Tipton kangaroo rat	FE	14604, **12426**, **14606**, **23911**, **24013**, **23909**, **14605**, **13268**, **6124**
Vulpes macrotis mutica - San Joaquin kit fox	FE	**9193**
Invertebrates		
Branchinecta lynchi - Vernal pool fairy shrimp	FT	30602, 649, **645**, **29205**, **844**, **646**, **411**, **47950**, **48483**, **48484**, **48485**, **48486**, **48487**, **48488**
Desmocerus californicus dimorphus - Valley elderberry longhorn beetle	FT	**19327**
Lepidurus packardi - Vernal pool tadpole shrimp	FE	**409**

	Status	CNDDB Sighting Index Number
Amphibians		
Ambystoma californiense - California tiger salamander	FT	**408**
Rana aurora draytonii - California red-legged frog	FT	None
Rana muscosa - Mountain yellow-legged frog	FPE	None
Reptiles		
Gambelia (=*Crotaphytus*) *silus* - Blunt-nosed leopard lizard	FE	27742, 27745, 27748, 27786, 27791, 27795, **27746**
Thamnophis gigas - Giant garter snake	FT	None
Birds		
Empidonax traillii extimus - Southwestern willow flycatcher	FE	None
Falco peregrinus anatum - American peregrine falcon	FD	None
Gymnogyps californianus - California condor	FE	None
Haliaeetus leucocephalus - Bald eagle	FT	None
Fish		
Hypomesus transpacificus - Delta smelt	FT	None

*CNDDB records in bold are within two miles of the service area.

The following is a key to the codes used in the tables to denote the status of a species:

FE	federal endangered
FT	federal threatened
FC	federal candidate
FD	federal delisted
FPE	federal proposed endangered
FPT	federal proposed threatened

Table 38: Land Use

Categories are the same as shown on the Land Use Map for purposes of this analysis. “Shared acreage” indicates that some or all of the listed acreage for a land use is shared with one or more districts. Districts can share acreage by overlap of boundaries or a district including another district.

Deer Creek and Tule River Authority			
Land Use Category	**Acreage**	**Native/Non-Native**	**Shared Acreage**
Industrial/Transportation	116.82	Non-Native	Yes
Residential/Commercial	74.04	Non-Native	No
Mixed Urban	199.42	Non-Native	No
Barren	10.78	Native	No
Crop & Pasture	13296.67	Non-Native	Yes
Orchard & Vineyard	5280.64	Non-Native	Yes
Confined Feeding Operations	658.40	Non-Native	Yes
Idle Land	90.58	Non-Native	No
Water	169.86	Native	No
Grassland & Unknown Rangeland	1158.81	Native	Yes
Shrub & Mixed Rangeland	0.00	Native	No
Forest	0.85	Native	No
Wetlands	268.45	Native	Yes
Retired Farmland	0.00	Native	No
Riparian	104.11	Native	No
TOTAL:	21429.43		
TOTAL NATIVE:	1712.86		
TOTAL NON-NATIVE:	19716.57		

Acreage shared with: KDWCD, KRCD

Appendix B

CVP Water Supplies

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CVP Water Supplies

CVP Friant Division Contractors and Class 1 and Class 2 Contract Entitlement

Friant Division	Class 1 (AF)	Class 2 (AF)
Arvin Edison WSD	40,000	311,675
Chowchilla Irrigation District	55,000	160,000
County of Madera	200	0
Delano-Earlimart Irrigation District	108,800	74,500
Exeter Irrigation District	11,500	19,000
City of Fresno	60,000	0
Fresno County Waterworks #18	150	0
Fresno Irrigation District	0	75,000
Garfield Water District	3,500	0
Gravelly Ford Water District	14,000	0
International Water District	1,200	0
Ivanhoe Irrigation District	7,700	7,900
Lewis Creek Water District	1,450	0
Lindmore Irrigation District	33,000	22,000
City of Lindsay	2,500	0
Lindsay-Strathmore Irrigation District	27,000	0
Lower Tule River Irrigation District	61,200	238,000
Madera Irrigation District	85,000	186,000
City of Orange Cove	1,400	0
Orange Cove Irrigation District	39,200	0
Porterville Irrigation District	16,000	30,000
Sausalito Irrigation District	21,200	32,800
Shafter-Wasco Irrigation District	50,000	39,600
Southern San Joaquin Municipal Utility District	97,000	50,000
Stone Corral Irrigation District	10,000	0
Tea Pot Dome Water District	7,500	0
Terra Bella Irrigation District	29,000	0
Tulare Irrigation District	30,000	141,000

Appendix C

EA Comment Letters and Reclamation Responses

Comment letters were received from:

Arvin Edison Water Storage District and
Friant Water Authority

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March 3, 2008

VIA EMAIL

Judi Tapia
U. S. Bureau of Reclamation
South Central California Area Office
1243 N Street
Fresno, CA 93721

Re: **2008 Conditional One Year Pre-approval of Transfers and Exchanges between Friant and Cross Valley Long-Term CVP Contractors and NCVP Contractors – Draft Environmental Assessment and Draft Finding of No Significant Impact**

Dear Ms. Tapia,

Friant Water Authority has reviewed the above referenced documents and appreciates the opportunities to provide comments. The Authority strongly supports the efforts by Reclamation to streamline the process for approval of transfers and exchanges involving CVP water with entities that do not have long term water service contracts with Reclamation. We believe that the referenced draft documents provide the necessary environmental documentation to support such expedited processes in 2008 with one important correction noted below. We also note that there continue to be discussions among the Authority, the affected districts, other CVP districts and Reclamation regarding the best means of processing and expediting such transfers. Therefore, the Authority's comments and acceptance of the proposed transfer application and approval procedures described or implicit in the subject EA and FONSI apply to this year only.

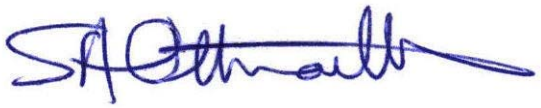
At the bottom of page 32 in the last sentence of the Cumulative Impacts section of the Environmental Justice section, it appears the word "not" has been omitted at a critical point. We believe the last sentence should read: "Alternatives 2, 3 and 4 do not change overall water supplies and do not result in major cumulative impacts for job opportunities for low income wage earners."

In addition, we believe that one of the benefits of the expedited transfers and exchanges is to assist in maintaining or enhancing local groundwater levels. To the

extent long-term CVP contractors are able to optimize the use of their contract water supplies in wet years, maintaining or reducing depths to groundwater may result in reduced energy use and pumping costs by local communities and individual homeowners as well as the farmers. Accordingly, it would be appropriate to note in the Socioeconomic Resources and Environmental Justice sections that there may be minor incidental benefits to local communities and individual homeowners due to reduced groundwater pumping costs.

Thank you for the opportunity to comment on the subject documents. If you have any questions, please feel free to contact me at 559-456-8506.

Very truly yours,



Stephen H. Ottemoeller
Water Resources Manager

Reclamation's Responses

Comment #1 – Amend the cumulative impacts analysis in the Environmental Justice section to accurately reflect that there are no cumulative impacts.

Reclamation Response – Change made in the document on page 32.

Comment #2 – "To the extent long-term CVP contractors are able to optimize the use of their contract water supplies in wet years, maintaining or reducing depths to groundwater may result in reduced energy use and pumping costs by local communities and individual homeowners as well as the farmers. Accordingly, it would be appropriate to note in the Socioeconomic Resources and Environmental Justice sections that there may be minor incidental benefits to local communities and individual homeowners due to reduced groundwater pumping costs."

Reclamation Response – This information was incorporated into the environmental consequences of Alternatives 2 and 4 for both Socioecomics and Environmental Justice sections on pages 27 and 31.

ARVIN-EDISON WATER STORAGE DISTRICT

20401 BEAR MOUNTAIN BOULEVARD
Mailing Address: P.O. Box 175
ARVIN, CALIFORNIA 93203-0175

TELEPHONE (661) 854-5573
FAX (661) 854-5213
EMAIL arvined@aewsd.org

February 29, 2008

Judi Tapia
United States Bureau of Reclamation
South Central California Area Office
1243 N. Street
Fresno CA 93727

RE: Comments: Draft Environmental Assessment – 2008 Conditional One Year Pre-approval of Transfers and Exchangos between Friant and Cross Valley Long-Term CVP Contractors and NCVP Contractors

Dear Judi,

Thank you for the opportunity to provide comments on the subject environmental assessment (EA).

Arvin Edison Water Storage District's (AEWSD) concerns center on its opinion that the EA is too limited in scope. The conditional pre-approval cumulative limit of up to 70,000 acre-feet (combined for both transfers and exchangos) is problematic. AEWSD believes there should be **no cumulative limits** to exchanges – especially when balanced exchanges are mandated, and the restriction for transfers seems to be unreasonably low. As stated in the EA, this limit is only about 3% of the total Friant CVP water supply. AEWSD suggests reevaluating this *transfer* number, (again, with no limits for exchanges) and suggests perhaps considering a limit corresponding to the original Friant contract obligations to take 20% of Class II water (280,000 acre-feet). You'll recall that this requirement was by design and the 20% had to be taken during a 30-day period, similar to what we can expect from Uncontrolled Seasons today (which has replaced the Obligation Periods). See page 11.

This EA excludes "unbalanced exchanges". AEWSD believes the United States Bureau of Reclamation has no authority to require a balanced exchange and a primary water management tool to regulate wet water to dry periods is to leave a portion of the water behind in "payment" for the water management benefit. Also, it seems unreasonable that the Bureau can approve a transfer in which no water is returned but exclude a transfer/exchange where half of the water is returned. See page 3.

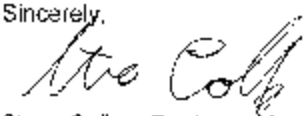
This EA also excludes "Banking of CVP water in groundwater banks or transfer or exchange of previously banking water". AEWSD's comment here pertains to the banking restriction because AEWSD would most likely take action on this EA for groundwater banking purposes as a routine action to supplement its variable and erratic supply. Where else would this high-flow, uncontrolled water go but into banks and conjunctive use programs?

The statement on page 14 "...amount of water surplus to the need of a given CVP contractor..." is potentially misleading. More correctly, we suggest the text read "amount of water surplus to a district's coincident irrigation or M&I demand." For districts such as AEWSD there is no such thing as ***surplus to the need***, and the transfers, exchanges, and banking programs are efforts to make full use of those supplies for which the project has insufficient storage so it can not be otherwise regulated. Those programs are necessary to the successful mitigation of groundwater overdraft. Without them, or if they are impacted by overly restrictive policies, the groundwater conditions in the Friant service area are negatively impacted.

Additionally, it is also important to emphasize that these transfers and exchanges to NCVP Contractors **cannot** restrict AEWSD's capacity use of the Friant Kern Canal (FKC) in any way.

Finally, the recently constructed FKC turnout and Cross Valley Canal (CVC) Intertie should be included as an approved facility to accommodate these actions. In order to avoid any ambiguity, perhaps the new FKC turnout/CVC intertie should be mentioned specifically as an approved facility.

Sincerely,



Steve Collup, Engineer-Manager

cc:

Steve Lewis, Staff Engineer
Jeevan Muhar, Engineer

Reclamation's Responses

Comment #1 – Amend the scope of the EA to include an unlimited ability to exchange water and to expand the volume of water that can be transferred.

Reclamation Response – EA-07-120 analyzed the project as proposed to Reclamation. When Reclamation receives other proposals, they will be analyzed and appropriate environmental documentation will be prepared.

Comment #2 – Amend the scope of the EA to include an imbalanced exchanges.

Reclamation Response – EA-07-120 analyzed the project as proposed to Reclamation. When Reclamation receives other proposals, they will be analyzed and appropriate environmental documentation will be prepared.

Comment #3 – Amend the scope of the EA to include groundwater banking.

Reclamation Response – EA-07-120 analyzed the project as proposed to Reclamation. When Reclamation receives other proposals, they will be analyzed and appropriate environmental documentation will be prepared.

Comment #4 – Amend the language on page 14 of the EA to more accurately explain the circumstances that allow water to be transferred.

Reclamation Response – Changes made to page 13 as suggested.

Comment #5 – Commentor wants to emphasize that the project cannot restrict the use of the FKC by the commentor.

Reclamation Response – Comment noted.

Comment #5 – The EA should be clarified to note that the FKC/CVC intertie is an existing facility.

Reclamation Response – Clarification made on page 9.

From: Amy Barnes
To: Tapia, Judi
Date: 1/28/2008 10:50:04 AM
Subject: 07-120 Friant Division-Cross Valley CVP Contractors Water Exchanges-Transfers (08-SCAO-105)

Tracking # 08-SCAO-105

Project: 07-120 Friant Division-Cross Valley CVP Contractors Water Exchanges-Transfers

Location: Merced, Madera, Fresno, Tulare, and Kern Counties.

Reclamation proposes to approve a conditional one-year pre-approval of transfers and exchanges between Friant Division and Cross Valley Long-Term CVP Contractors and Non-Long Term Contractors. Friant Division and Cross Valley Central Valley Project (CVP) contractors have requested a streamlined process to expedite transfers and exchanges of water with entities that do not have long term water service contracts with Reclamation. The identified group of 17 non-long term contractors has historically received CVP water deliveries via the Friant-Kern Canal, either from the delivery of unstorable flood flows via temporary water service contracts or from transfers from CVP contractors. The purpose of moving water to non-long term contractors is to decrease groundwater pumping and minimize overdraft in a contractors' service area.

Thank you for the opportunity to review the proposed action. Please add the following paragraph to the Cultural Resources section of the EA.

The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation which outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking listed on cultural resources on or eligible for inclusion in the National Register of Historic Places. The Section 106 process is outlined in the Federal regulations at 36 CFR Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. Both the no action and the proposed action alternative constitute no potential to affect historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1). The proposed action will not result in modification to existing facilities or construction of new facilities nor bring lands into new agricultural production. There will be no significant impact to cultural resources as a result of implementing the proposed action alternative.

Amy J. Barnes
Archaeologist
U.S. Bureau of Reclamation
Mid-Pacific Region
2800 Cottage Way, MP-153
Sacramento, CA 95825
916-978-5047
abarnes@mp.usbr.gov

CC: mp153

From: Patricia Rivera
To: Tapia, Judi
Date: 1/28/2008 12:04:25 PM
Subject: Re: ITA Review Please!

Judi, I have reviewed the proposed action by the Friant Division and Cross Valley contractors to have a streamlined conditional pre-approval process developed that will encourage efficient water management and allow maximum water management flexibility between themselves and a group of 17 NLTC through transfer and exchanges. The Non-Central Valley Project contractors who are potential recipients of transfer or exchanges are:· Buena Vista Water Storage District · Kings County Water District· Cawelo Water District· Kings River Conservation District· Consolidated Irrigation District· Lakeside Irrigation District· Corcoran Irrigation District · Liberty Water District· Deer Creek & Tule River Authority · Kaweah Delta Water Conservation District· Rosedale-Rio Bravo Water Storage District· Kern County Water Agency · Semitropic Water Storage District· Kern Delta Water District· Tulare Lake Basin Water Storage District· Kern Water Bank Authority · North Kern Water Storage District Twelve of the above NLTC's are individual entities and five are umbrella agencies, are comprised of numerous contractors. Deer Creek & Tule River Authority (DCTRA), Kaweah Delta Water Conservation District, Kern County Water Agency, Kern Water Bank Authority and Kings River Conservation District all serve as umbrella agencies with multiple sub-entities. Each of the twelve contractors that are individual entities may also be included in one of the five umbrella agencies. This EA looks at the conveyance and delivery of CVP water supplies from a programmatic viewpoint but does not evaluate the freeing up of the water supplies by the Friant and Cross Valley contractors. Additional individual proposal-specific environmental analysis must be completed for each transfer or exchange requested. As a condition of the proposed transfers and exchanges, the NLTC water application or conveyance would not affect the presence of threatened or endangered species. Grasslands and shrub land that have never been tilled or irrigated would not be tilled and put into production using this water acquired via transfer or exchange. Land that has been fallowed, idled, or not cultivated on a temporary basis (less than three consecutive years) and rotated back into production is not considered conversion of a native habitat. Participating NLTC would commit to compliance with the terms and conditions of the Friant Long Term Contract Renewal BO. All supplies to be transferred and exchanged would be supplies from Millerton Reservoir as part of the transferor's CVP contract supply. The alternatives also require that the following conditions be met: · CVP water may be applied only to lands located within the applicable Friant POU boundaries inside of NLTC's established service area boundaries· CVP water may be used for either Irrigation or M&I purposes· No native or untilled land (fallow for 3 years or more) may be cultivated with CVP water involved in these actions· No new construction or modification of existing facilities is to occur in order to complete the Proposed Actions· No new water supplies are to be created by the delivery of the CVP water to the NLTC for movement outside of the NLTC's service area boundaries · There can be no change in the historic points of delivery for Friant CVP supplies,· There can be no impacts to third parties· Transfers and exchanges involving CVP water cannot alter the flow regime of natural waterways or natural watercourses such as

rivers, streams or creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats. All transfers and exchanges involving CVP water must comply with all applicable federal, state and local laws, regulations, permits, guidelines and policies. Reclamation would review each transfer or exchange proposal for compliance with the above conditions prior to approval and execution of the action The contractors in this Proposed Action would sign binding letters of agreement restricting the use of this water and including the requirements described above to avoid environmental impacts. Reclamation, after internal scoping meetings and discussion with the CVP and NCVP contractors, has identified three alternatives that would meet the purpose and need identified, as listed below. Each of the action alternatives includes the general aspects of the Proposed Action described above. **Alternative 1** Conditional pre-approval of up to 70,000 acre-feet per year (afy) of CVP water supplies transferred from Friant and Cross Valley CVP contractors to the NLTCs delivered within the 2008 Contract Year and incorporating the general conditions described above. **Alternative 2**Conditional pre-approval of up to 70,000 afy of CVP water supplies exchanged equivalently between Friant/Cross Valley CVP contractors and the NLTCs. Each exchange must be initiated within the 2008 Contract Year with the equivalent amount of water being returned within 365 days of the initiation of CVP water movement. This alternative also incorporates the general conditions described above. Alternative 3 Approval of a combination of Alternatives 1 and 2 for a cumulative total of 70,000 afy (Preferred Alternative.) Alternative 3 has been identified as the Preferred Alternative because it would allow the greatest flexibility in meeting the agency goals and mission. I concur the proposed action will not affect Indian Trust Assets. The nearest ITA to the proposed site is the Santa Rosa Rancheria. The proposed action falls inside the Santa Rosa Rancheria. Even though there is no affect to ITA as a result of the proposed action, it is suggested that as a "good neighbor," notice of the proposed action be provided to the Tribe.
Patricia

>>> Judi Tapia 1/23/2008 1:03 PM >>>
Please find new and improved ITA request form filled out and attached as well as maps within the ITA form! I know I keep sending you these huge areas! Sorry! My recent projects have tended to encompass huge study areas. Let me know if you need anything else!!

CA#- A10-1785-8943-332-10-0-0

Thanks so much!!

From: Shauna MCDONALD
To: Tapia, Judi
Date: 2/27/2008 10:31:23 AM
Subject: Re: Non-CVP EA

Hi Judi. I think we're fine. Service looked at it and didn't have any issues.

- Shauna

>>> Judi Tapia 2/27/2008 7:19:53 AM >>>
Are we good to go ESA-wise with the one year non-cvp EA? I just want to make sure! The public comment period is over and i want to finalize and route the EA.

Thanks for the comments on the Article 5 EA! I appreciate your help immensely!!